APPLICATION OF LASER IN PROCTOLOGY

DR. DILIP BHOSALE

MS (General Surgery), MBBS
Experience : 35 Years
Speciality : General & Laparoscopic Surgery

NEO LASER

PATHOPHYSIOLOGY OF DIODE LASER ENERGY

Laser 1470 nm

Affinity for water (dehydration)

Affinity for haemoglobin (coagulation)

Low range of action (3mm)

Interference in the healing process, stimulating collagen synthesis.

Tissue coagulation in laser hemorrhoidoplasty-Open Med,2020 Donatus Danys

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HOW LASER WORKS

- THE DIODE LASER (1470 nm) PENETRATES UPTO 2mm,DETERMINING SUBMUCOUS DENATURATUION & CONTROLLED SHRINKAGE OF HEMORRHOIDAL TISSUE.IT IS SELECTIVELY & BETTER ADSORBED BY THE WATER & CONSEQUENTLY CAUSES LESS DAMAGE TO SURROUNDING TISSUE,PREVENTING ANY SPHINCTERAL DAMAGE. IN ADDITION FIBROTIC RECONSTRUCTION GENERATES NEW CONNECTIVE TISSUE,WHICH ENSURES FULL MUCOSA ADHERANCE TO THE UNDERLYING TISSUE.
- UNDER ANAESTHESIA LASER ENERGY IS DELIVERED BY LASER FIBER DIRECTLY TO HEMORRHOIDS & WILL OBLITERATE FROM INSIDE & THIS WILL HELP TO PRESERVE MUCOSA & SPHINCTER STRUCTURE TO AN EXTREMELY HIGH PRECISION.LASER ENERGY USED TO CLOSE OFF THE BLOOD SUPPLY NOURISHING THE ABNORMAL GROWTH.THE LASER ENERGY INDUCES DESTRUCTION OF VENOUS EPITHELIUM & SIMULTANEOUS OBLITERATION OF THE HEMORRHOIDS BY A SHRINKAGE EFFECT.

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TYPES OF LASER FIBERS

CONICAL

Fiber for Haemorrhoids

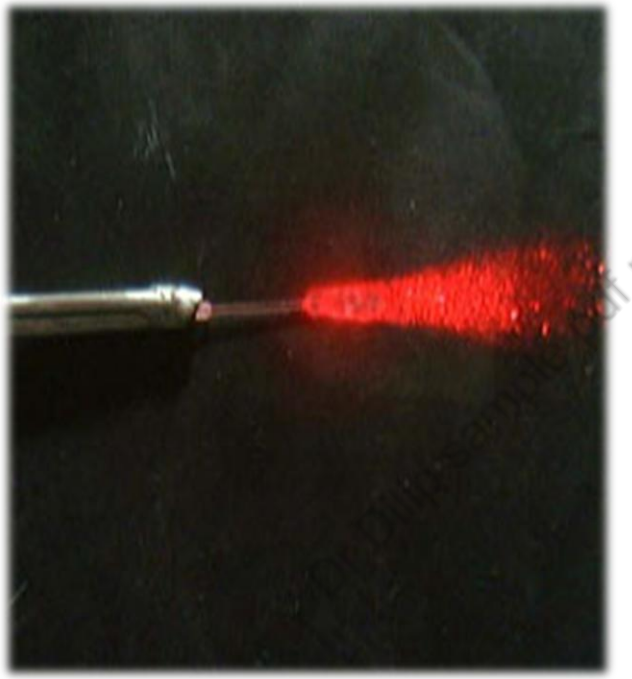
Special conical glass tip
Sharp tip for haemorrhoid puncture.

RADIAL

Fistula and Sinus Probe

Special Radial 360 degree round glass tip.
Blunt tip for safe insertion.

BARE



Bare Fiber for Fissure in Ano & HEMORRHOIDS

These fibers emit a V- shaped energy. Cause a little more pain post operatively.

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QUALITY

From the first day of operations, we have placed product quality as our number one priority. We believe this is the only viable long-term path to success and sustainability. Quality is our focus in product efficacy, in product safety, in customer service and support, and in any aspect of our company operations. neoLaser has established, maintained, and developed the most rigorous Quality System possible, leading to product registration in many key markets including USA (FDA), Europe (CE mark), Australia (TGA), Brazil (Anvisa), Canada (Health Canada), Israel (AMAR), Taiwan (TFDA), and many others.

The company holds the ISO13485:2016 certification.

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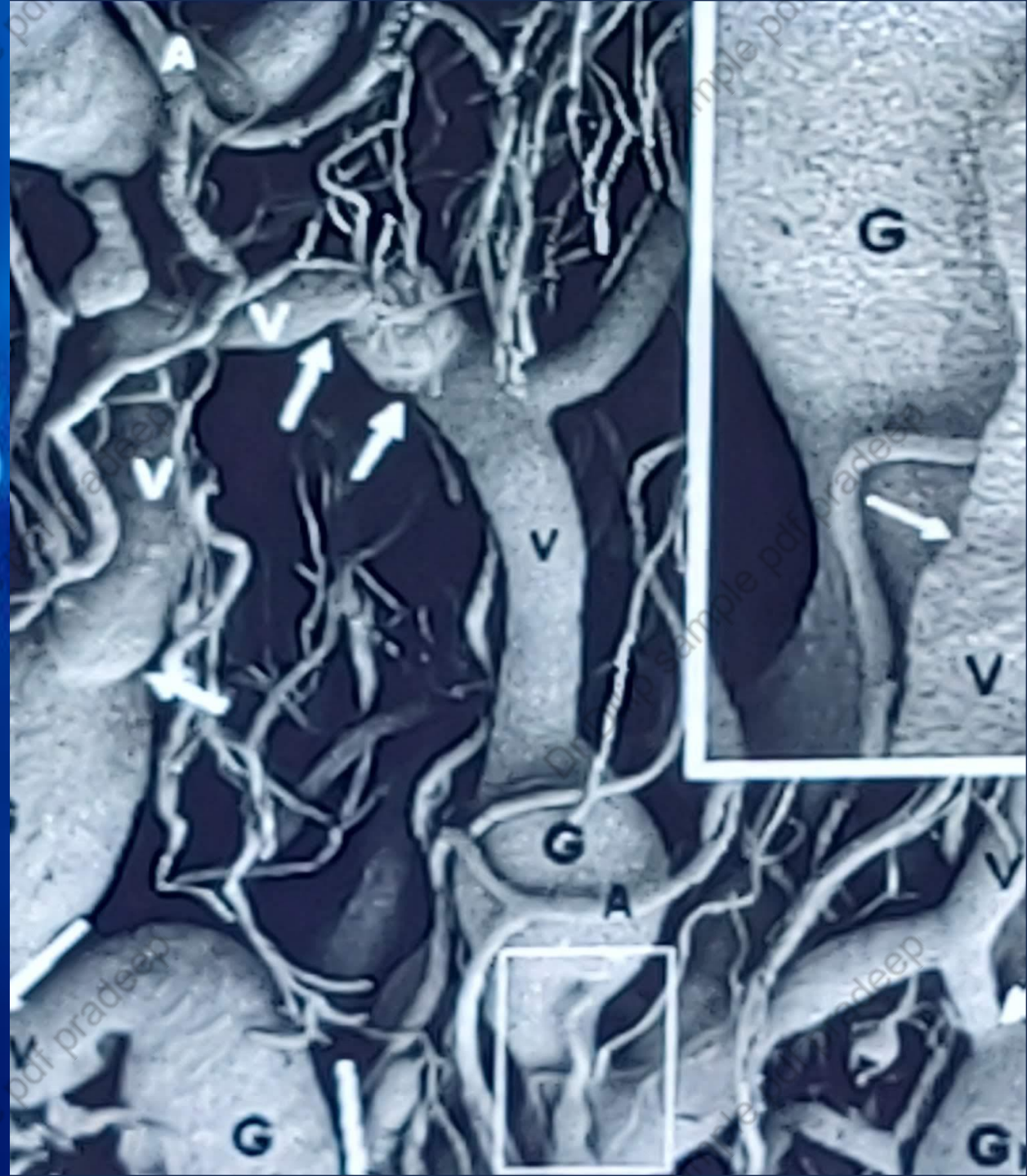
LASER TREATMENT OF HEMORRHOIDS, FISSURE, FISTULA & PILONIDAL SINUS

HYBRID Laser Hemorrhoidoplasty

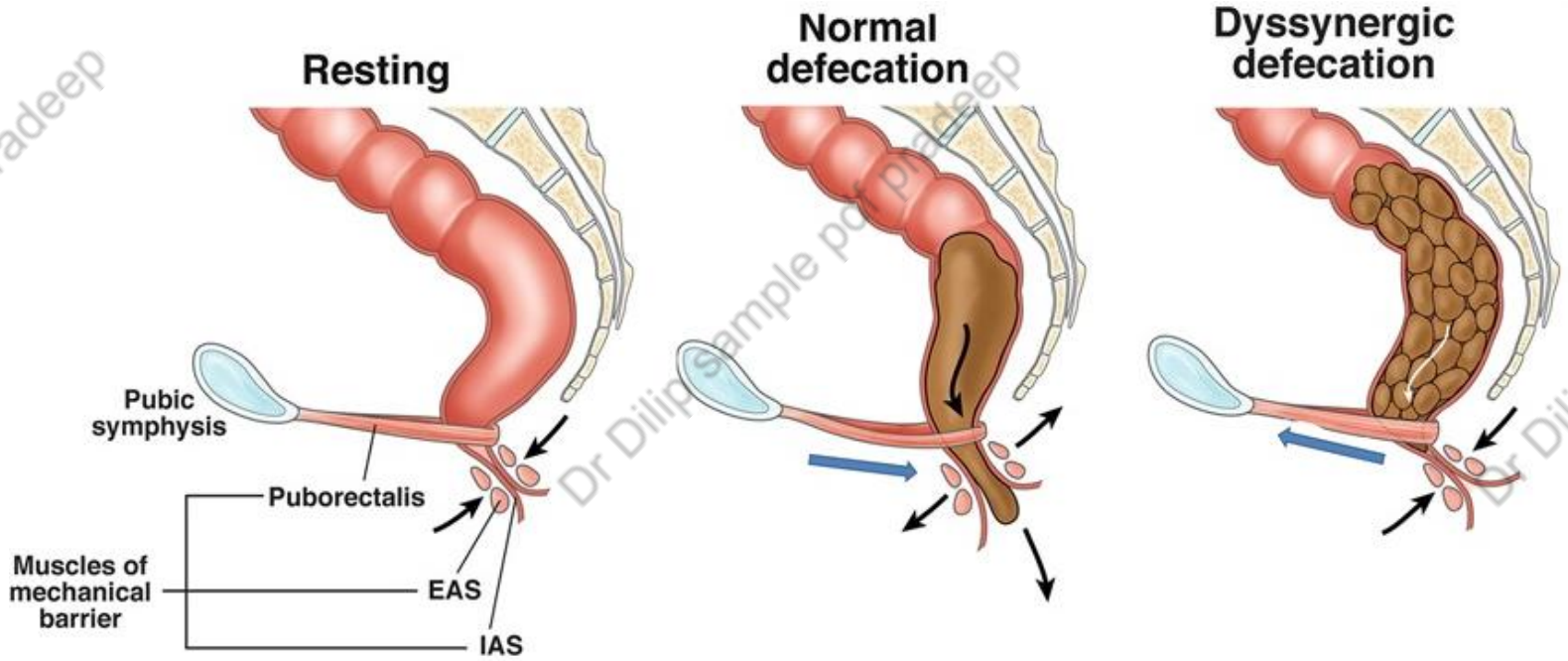


HISTORY

Middle Age: John of Ardene
Renaissance: Ambroise Paré
XVIII Century: Lorenz Heister

Babylon 2250 B.C.
Egypt: 1500 B.C.
Greece: Hipocrates 460 B.C.
Rome: Celsus
Arabian medicine (El-Zahrawy)

DYSSNERGIC DEFECATION



Dyssenergic defecation; Turk J Gastroenterol. 2023 March

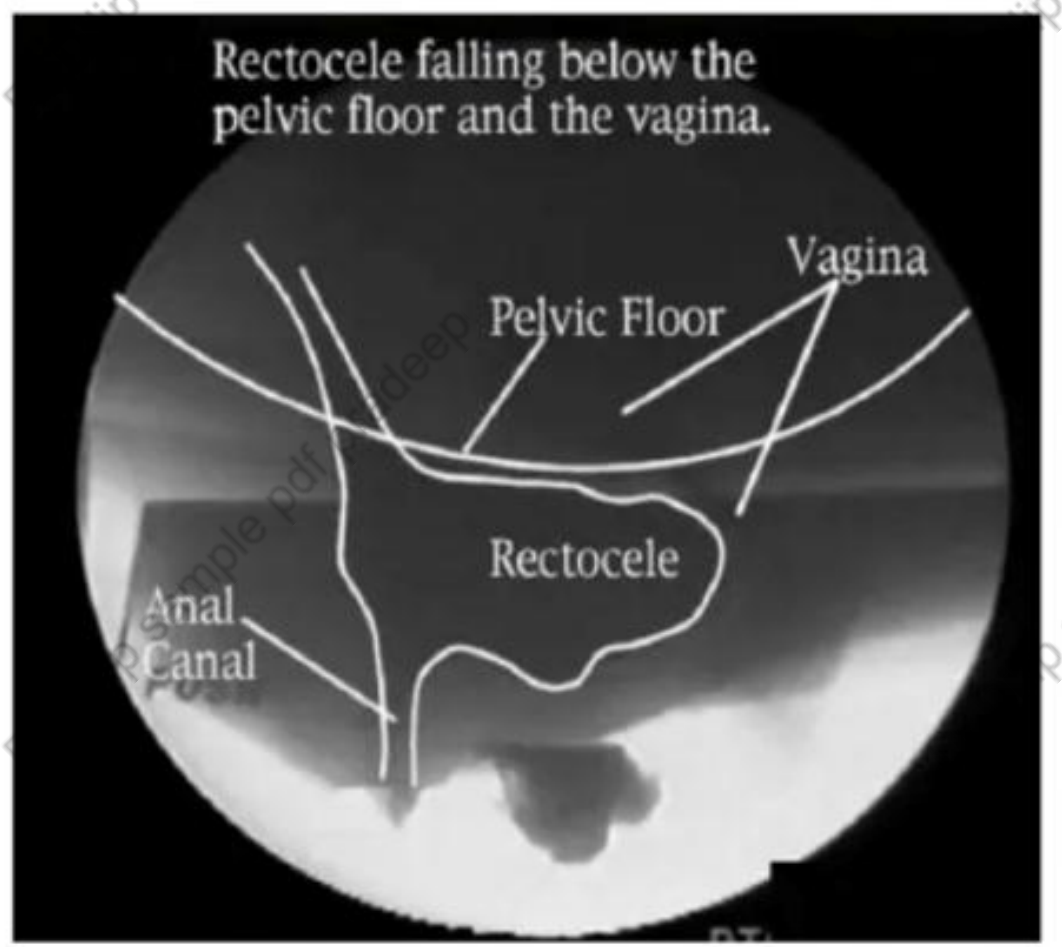
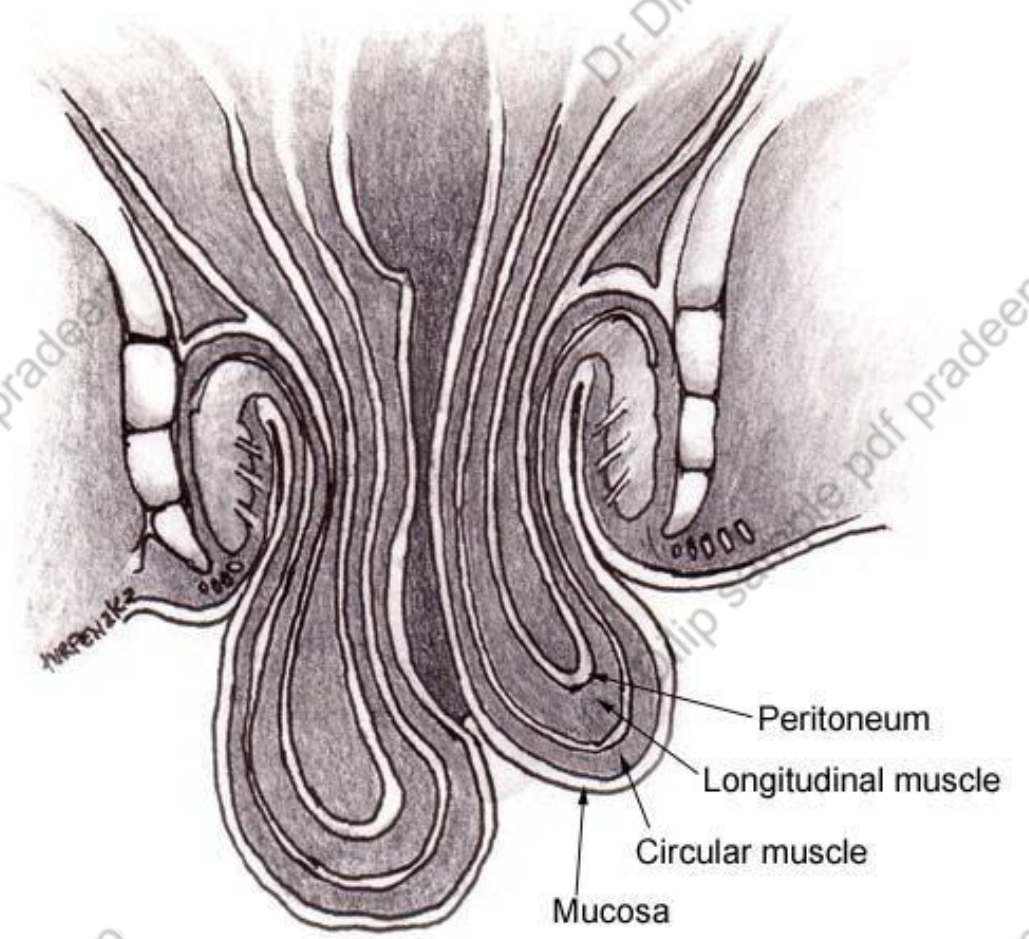


Figure 2. Fluoroscopic image at defecography demonstrating a rectocele.



THEORY OF PILES FORMATION

EXACT PATHOPHYSIOLOGY IS UNKNOWN.

LIKELY TO BE MULTIFACTORIAL

- SLIDING ANAL CUSHION / LOSS OF FIXATION

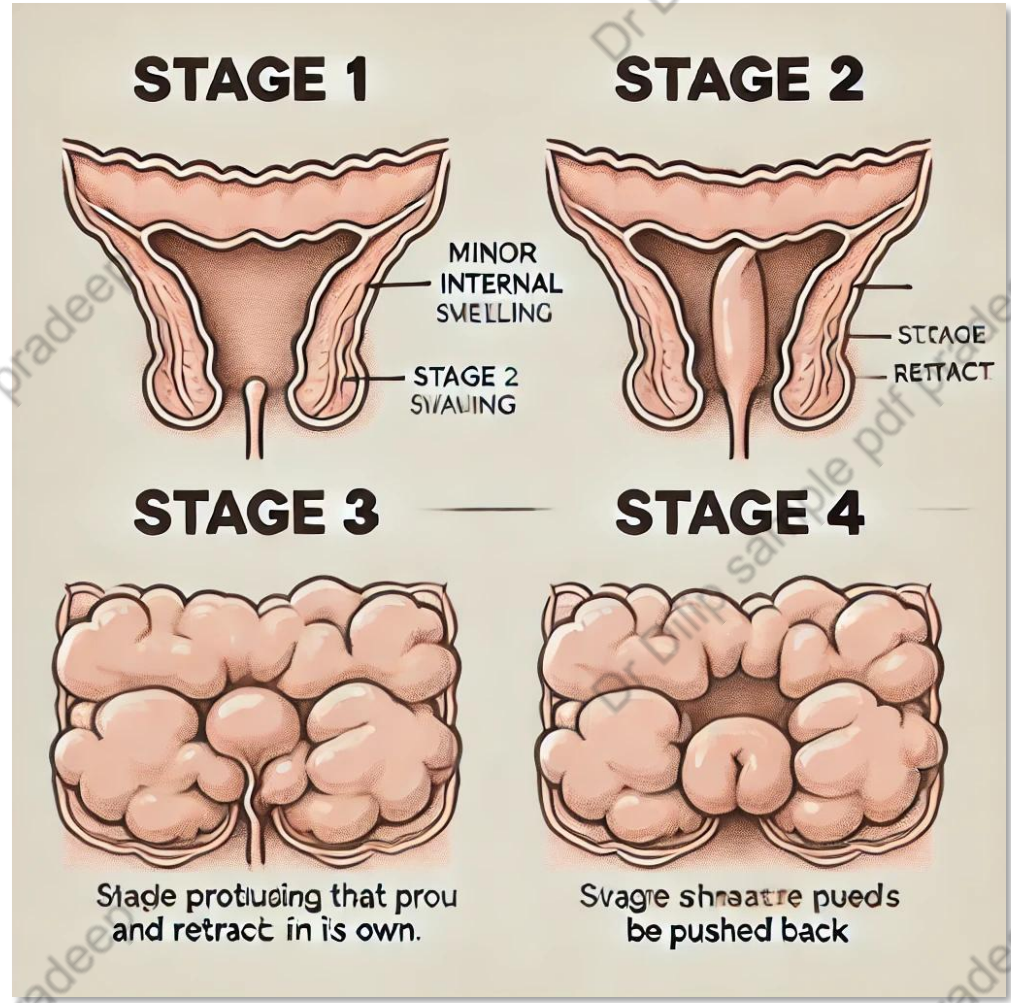
Presenting symptom - Prolapse

- RECTAL REDUNDANCY / INTERNAL RECTAL PROLAPSE

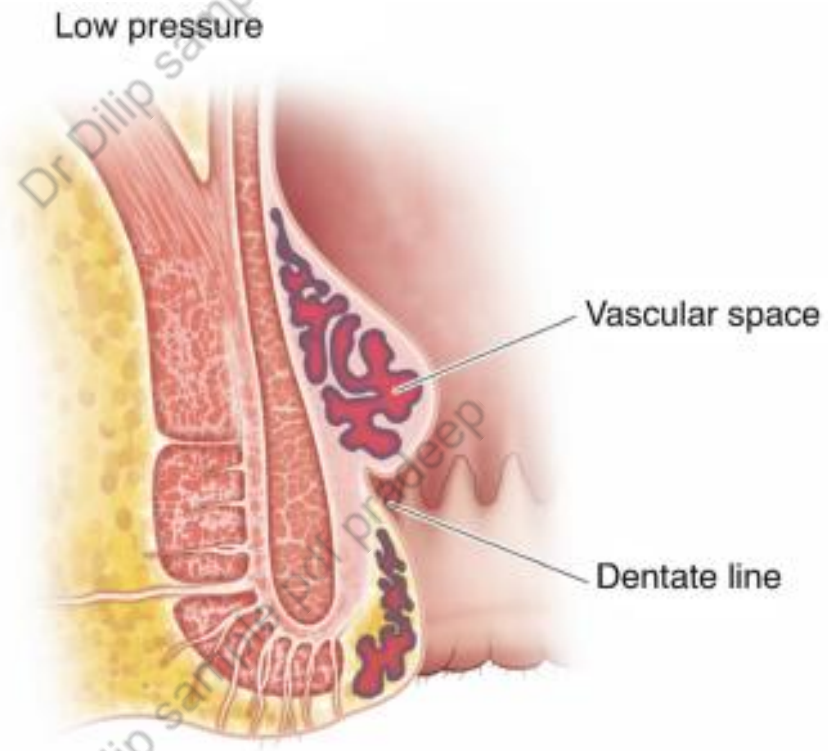
Presenting symptom - circumferential prolapse

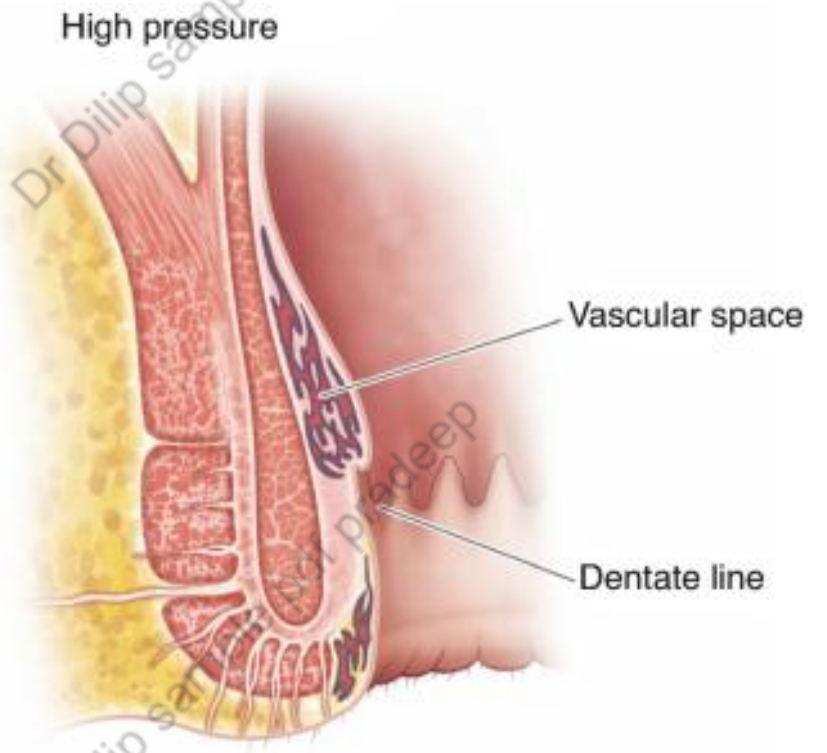
- VASCULAR ABNORMALITIES

Presenting symptom - Bleeding



Hemorrhoids : From basic pathophysiology : World J Gastroenerology 2012 may : Varut Lohsirwat





THEORY OF "SLIDING ANAL CUSHIONS"

- DESTRUCTIVE CHANGES IN THE SUPPORTING CONNECTIVE TISSUE OF ANAL CUSHION
- DISTAL DISPLACEMENT OF ANAL CUSHIONS

THEORY OF VASCULAR ABNORMALITIES

- **INCREASED ANORECTAL BLOODFLOW**

Aigner el.al.J.Gastrointest.surg.2006

- **VASCULAR HYPERPLASIA**

Chung el.al.Eur.J.Clin. Invest.2004

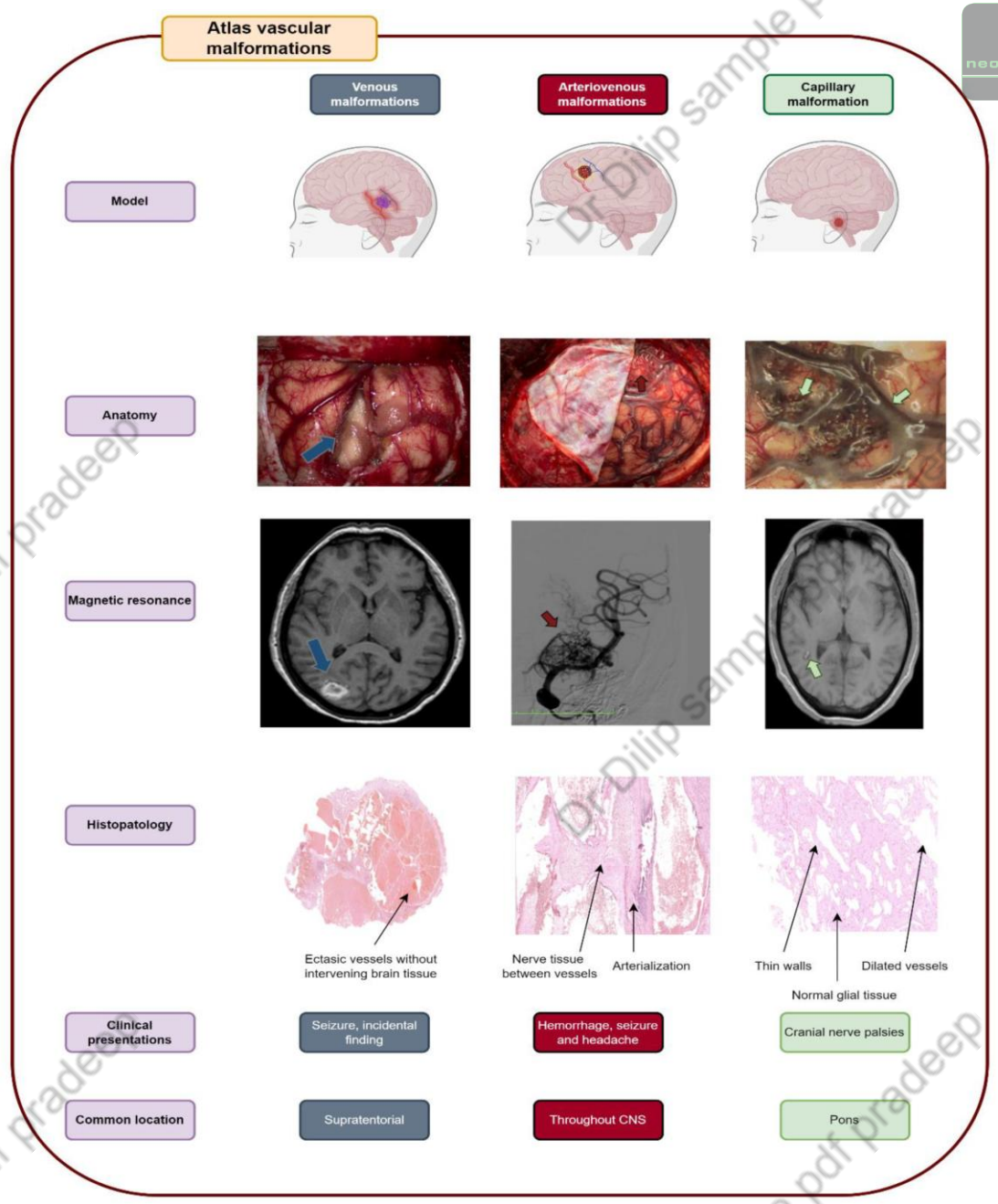
Han el.al.Chinese J. of Gastroint.surg.2005

- **DYSREGULATION OF THE VASCULAR TONE(i.e. VASODILATATION)**

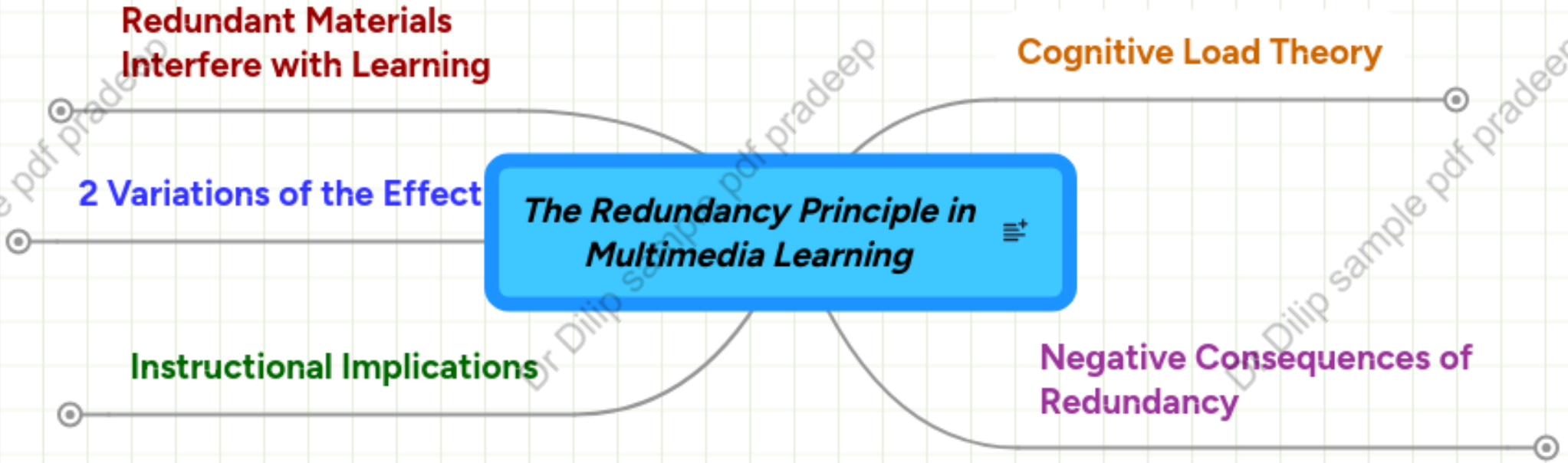
Lohsiriwat el.al.Current vascular pharmacology2008

- **INFLAMMATORY REACTION INVOLVING VASCULAR WALL & SURROUNDING TISSUES**

Morgado P J .dis. Colon Rectum1988

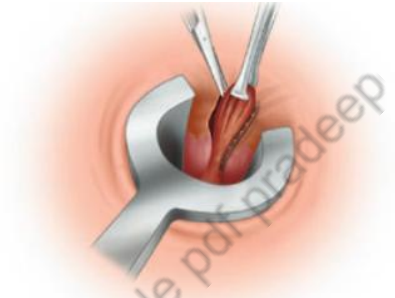


THEORY OF “ REDUNDANCY”



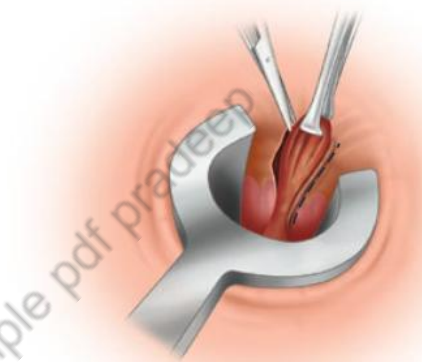
- SOME CLINICIANS POSTULATED A REDUNDANT RECTAL MUCOSA AS A PRIMARY ALTERATION OF HEMORRHOIDS
- THIS THEORY PROPOSES THAT PROLAPSED HEMORRHOID IS ALWAYS ASSOCIATED WITH AN INTERNAL RECTAL PROLAPSE

HEMORRHOIDECTOMY



Milligan-Morgan A

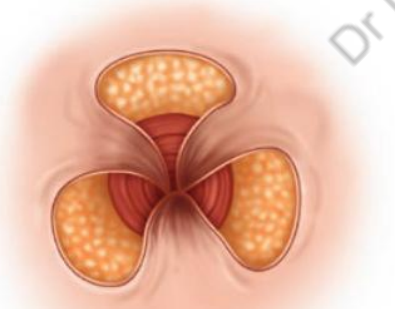
Milligan-Morgan B



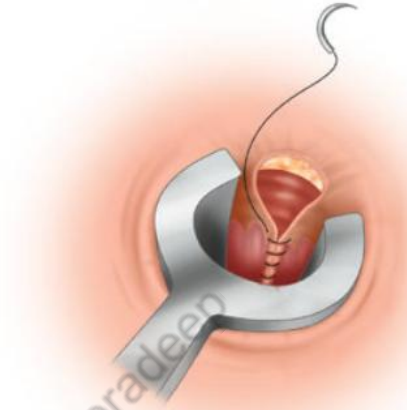
Ferguson A

Ferguson B

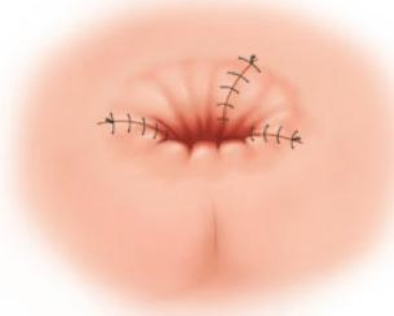
Milligan-Morgan C



Milligan-Morgan D



Ferguson C



Ferguson D

Dr. Kamal Gupta

A laser is a luring and a fascinating tool. A surgeon feels elated when an influx of patients visits him for a laser procedure. But owning the tool does not make one a laser specialist. A sur-geon must know; What to do, how to do, and when not to do . Thorough knowledge of lasers, with precise energy, and correct wavelength usage makes it possible to give satisfactory results.

The success is to ensure we have the right tool with the right man behind the tool.

Lasers in proctology...Kamal Gupta

CHARACTERISTICS OF LIGHT

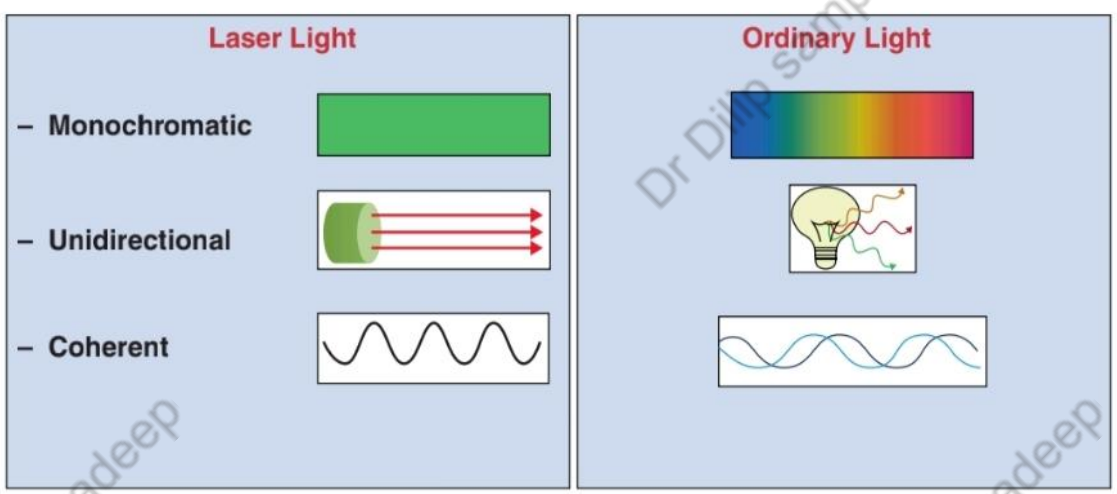


Table 1.4 Types of lasers used for medical applications

Medium	Type of laser	Medical application
Gas	Helium and neon	Biostimulation, physiotherapy, targeting beam.
	Argon	Ophthalmology, general surgery, dermatology, photodynamic therapy, otorhinolaryngology, tissue welding, gastroenterology, dentistry.
	CO_2	Dermatology, photodynamic therapy, ophthalmology.
	Metal vapor excimer	Dermatology, dentistry, ophthalmology.
Liquid	Tunable dye	Gynecology, ophthalmology, photodynamic therapy, dermatology.
Solid	Ruby	Dermatology
	Nd: YAG	Orthopedics, urology, gastroenterology, tissue welding, gynecology, neurosurgery, otorhinolaryngology, general surgery.
	Er: YAG	Gynecology, dermatology, ophthalmology, dentistry.
	Ho: YAG	Gynecology, orthopedics (tissue ablation), dentistry.
	KTP	Otorhinolaryngology, gastroenterology, gynecology.
Semi-conductor	Diode	Biostimulation, ophthalmology, tissue welding, proctology.

THERMAL EFFECTS OF LASER

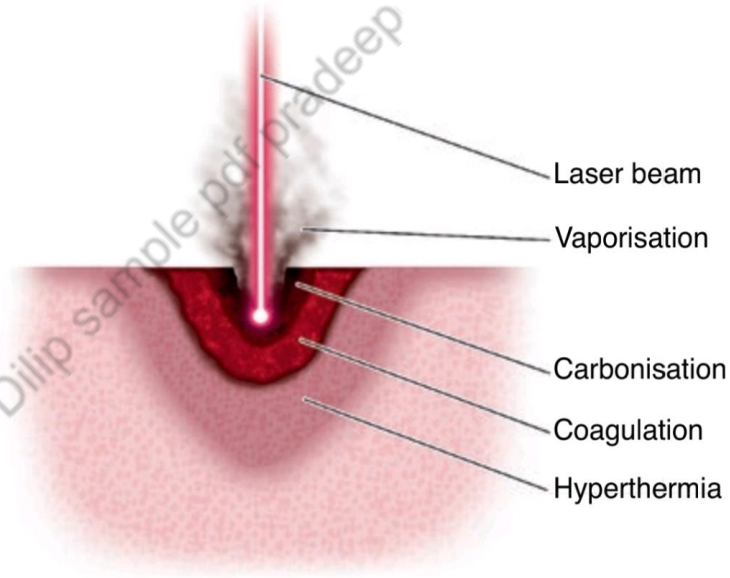
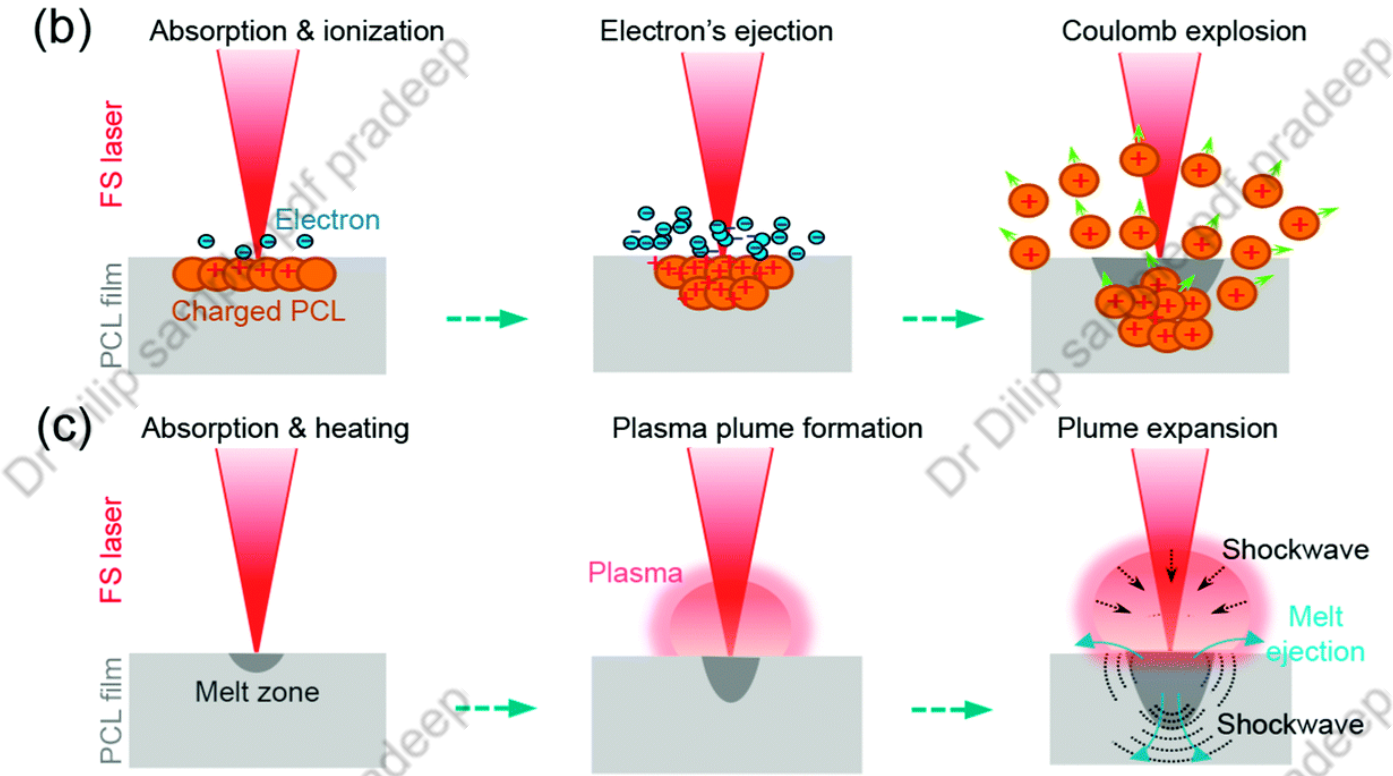
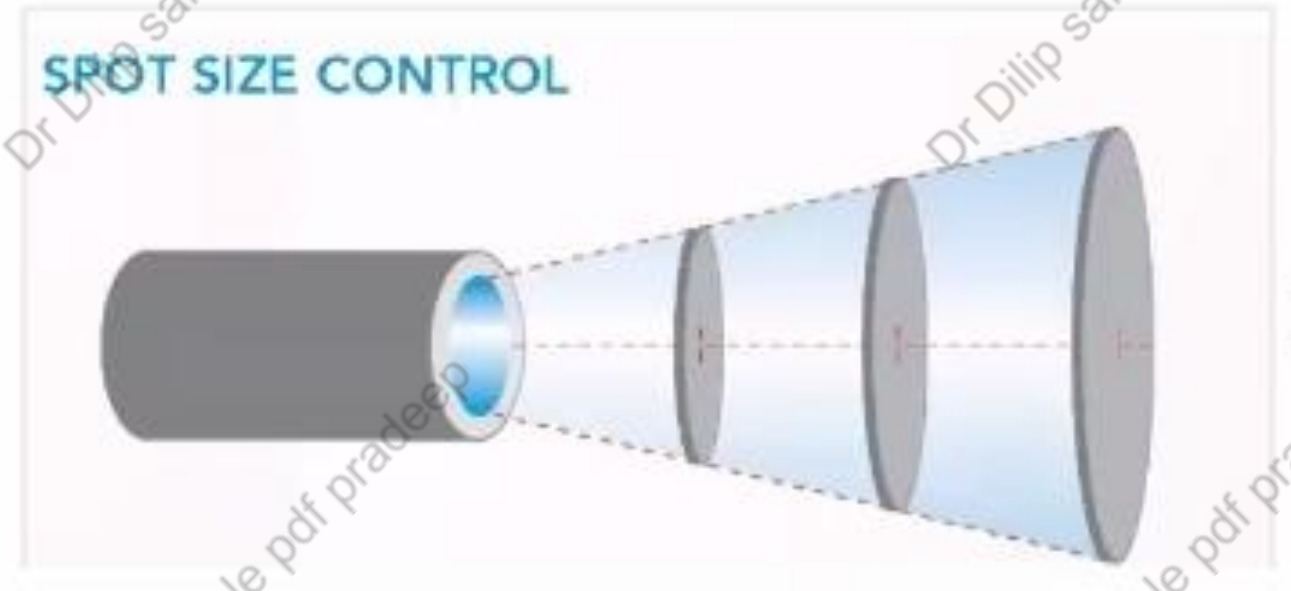


Fig. 1.3 Thermal effects





THE CONCEPT OF POWER DENSITY

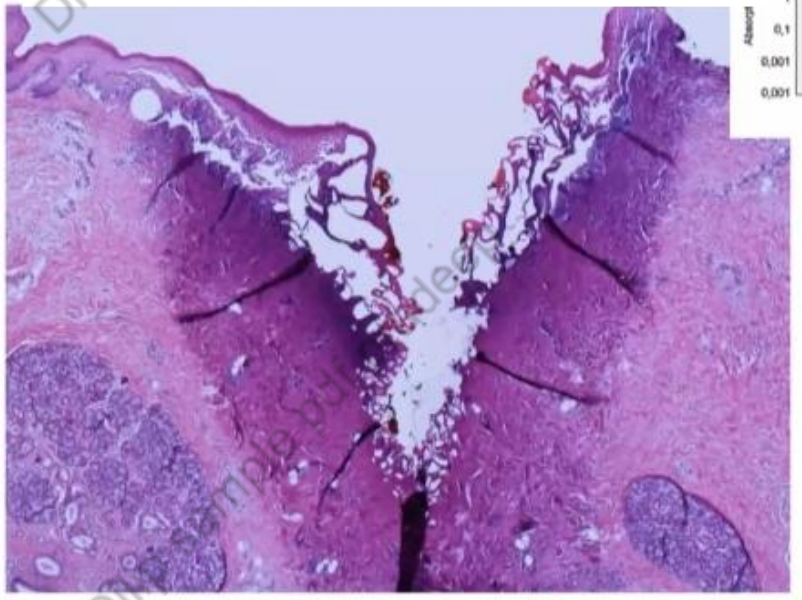
- Bare fibers - light diverges on output
- Large distance - low power density
- Small distance - high power density

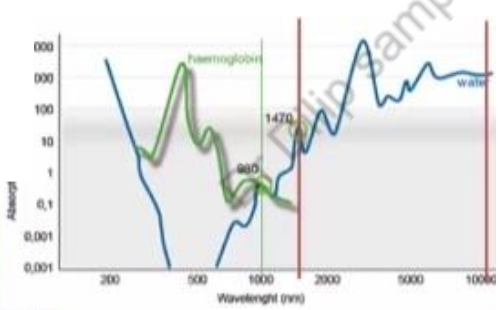
$$\text{Power Density} = \frac{\text{Power}}{\text{Spot size (area)}}$$

Power Density = Force of applying a mechanical scalpel

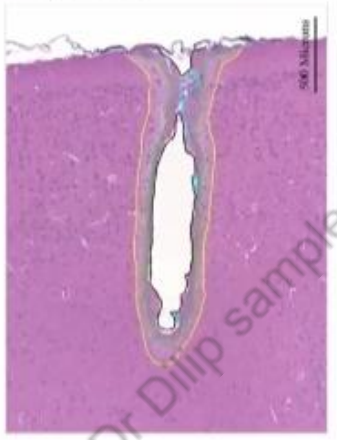
EXAMPLE OF TISSUE INTERACTION

HISTOLOGY ON SOFT TISSUE
1470 LASER





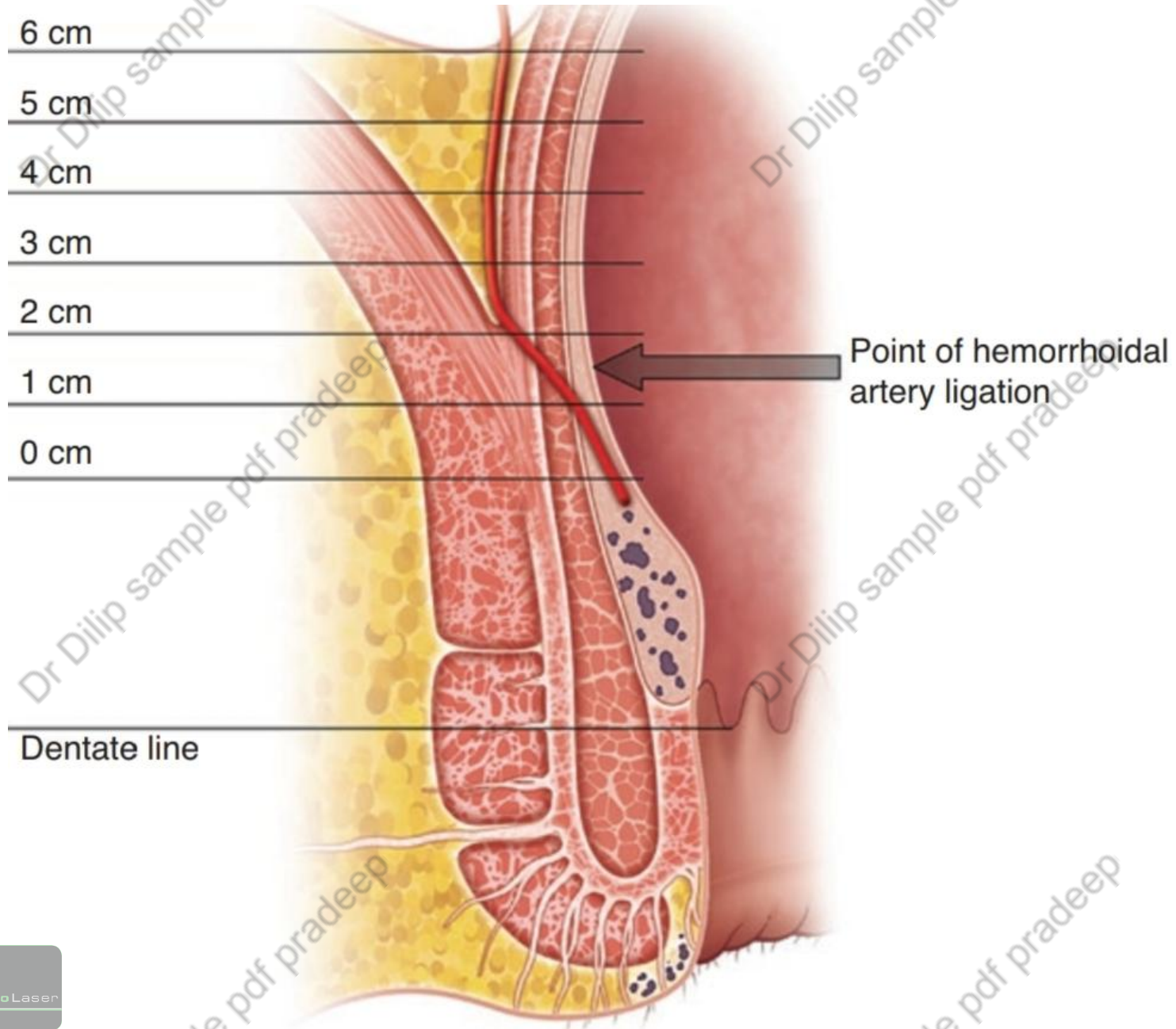
CO_2 Laser CUT



- Local peak absorption in water
- Heat is localized
- Thermal damage of ~2mm
- Good coagulation properties
- A good balance of precision vs coagulation

INTEGRATED COMPREHENSIVE HYBRID TREATMENT APPROACH FOR TREATING HEMORRHOIDS

- TREATING THE PATHOPHYSIOLOGICAL FACTORS LIKE SLIDING ANAL CUSHIONS ,RECTAL REDUNDACY (INTERNAL RECTAL MUCOSAL PROLAPSE) & VASCULAR ABNORMALITIES ALONG WITH LASER TREATMENT OF HEMORRHOIDS.
- FG-HAL & RECTAL MUCOPEXY WHEN COMBINED WITH LASER HEMORRHOIDOPLASTY ADDRESSES THE UNDERLYING CAUSES OF HEMORRHOID FORMATION,OFFERING A MORE EFFECTIVE & LASTING SOLUTION.



FINGER GUIDED HEMORRHOIDAL ARTERY LIGATION

In FGHAL the vessels can be papated above the dentate line with the tip of the index finger & ligation can be carried out effectively.The principle behind this is dearterialization by ligating branches of superior hemorrhoidal artery.Once the vessel is palpated,the ligation is done with 2/0 or 3/0 vicryl suture.Some fibers of internal sphincter are always taken along.After ligation palpate the pulsation to confirm the effective ligation has been achieved.If possible ligate 4-6 branches.After ligation a redction in size of the hemorrhoids is noted immediately.


HEMORRHOIDAL ARTERY LIGATION


RECTAL MUCOPEXY

LASER HEMORRHOIDOPLASTY

First described in 2009 Technically simple,minimally Invasive,safe, & effective Procedure for symptomatic Hemorrhoids(gradeII & III).

PROCEDURE

LHP IS DONE USING DIODE LASER OF 1470 NM WAVELENGTH WITH SHARP TIPPED LASER FIBER. LASER FIBER IS INTRODUCED UNTIL THE LEVEL OF HEMORRHOIDAL PEDICLE & COAGULATION IS ACTIVATED.A TOTAL OF 250 JOULES IS UPPER LIMIT OF ENERGY DELIVERED PER HEMORRHOIDAL QUADRANTS.SMALLER HEMORRHOIDS ARE TREATED WITH LESS ENERGY.THE PROCEDURE IS REPEATED IN OTHER QUADRANTS,THUS TREATING ALL ANAL CIRCUMFERENCE.

ADVANTAGES

NO SIGNIFICANT INTRAOPERATIVE COMPLICATIONS,POSTOP. PAIN IS LOW (VISUAL ANALOGUE SCALE-mean value 2),NO POSTOP. SPONTANEOUS BLEEDING,DAILY ACTIVITY IN 2 DAYS,RECURRENCE IS LESS,NO SPECIAL ANAL HYGIENE & LOW SURGICAL TIME.

PRECAUTIONS

- FIBER TIP SHOULD BE IN SUBMUCOSAL PLANE & LITTLE AWAY FROM MUCOSA & MUSCLES.
- EVERY 2 SECONDS THE FIBER SHOULD BE MOVED IN FAN SHAPED MANNER ,GIVING LASER ENERGY TO PEDICLE,ANASTOMOTIC VESSELS,COLATERAL VESSELS & HEMORRHOIDAL TISSUE.
- APPLY ICE AFTER DELIVERING ENERGY TO EACH SEGMENT

PROCEDURE

- POWER: 6-8WATTS
- CONTINUOUS MODE
- LASER FIBER TYPE: BARE OR CONICAL
- DOSE: MAX 200 JOULES/SEGMENT OF HEMORRHOIDS (DEPENDING UPON SIZE)

- ENERGY HAS TO BE DELIVERED IN THE SUBMUCOSAL PLANE ,AVOIDING INJURY TO THE MUCOSA & THE SPHINCTERIC MUSCLES

STEPS

1. FINGER GUIDED HEMORRHOIDAL ARTERY LIGATION
2. RECTAL MUCOPEXY
3. LASER ENERGY TO SUBMUCOUS PLANE
4. LASER ENERGY TO INTRAHEMORRHOIDAL MASS

FIRST AND SECOND STEP

FGHAL (Finger guided Hemorrhoidal artery Ligation) & Rectal Mucopexy if the rectal mucosa is lax & / or If Circumferential Hemorrhoidal prolapse


LASER HEMORRHOIDALPLASTY

DEARTERIALIZATION OF HEMORRHOIDS & RECTAL MUCOPEXY

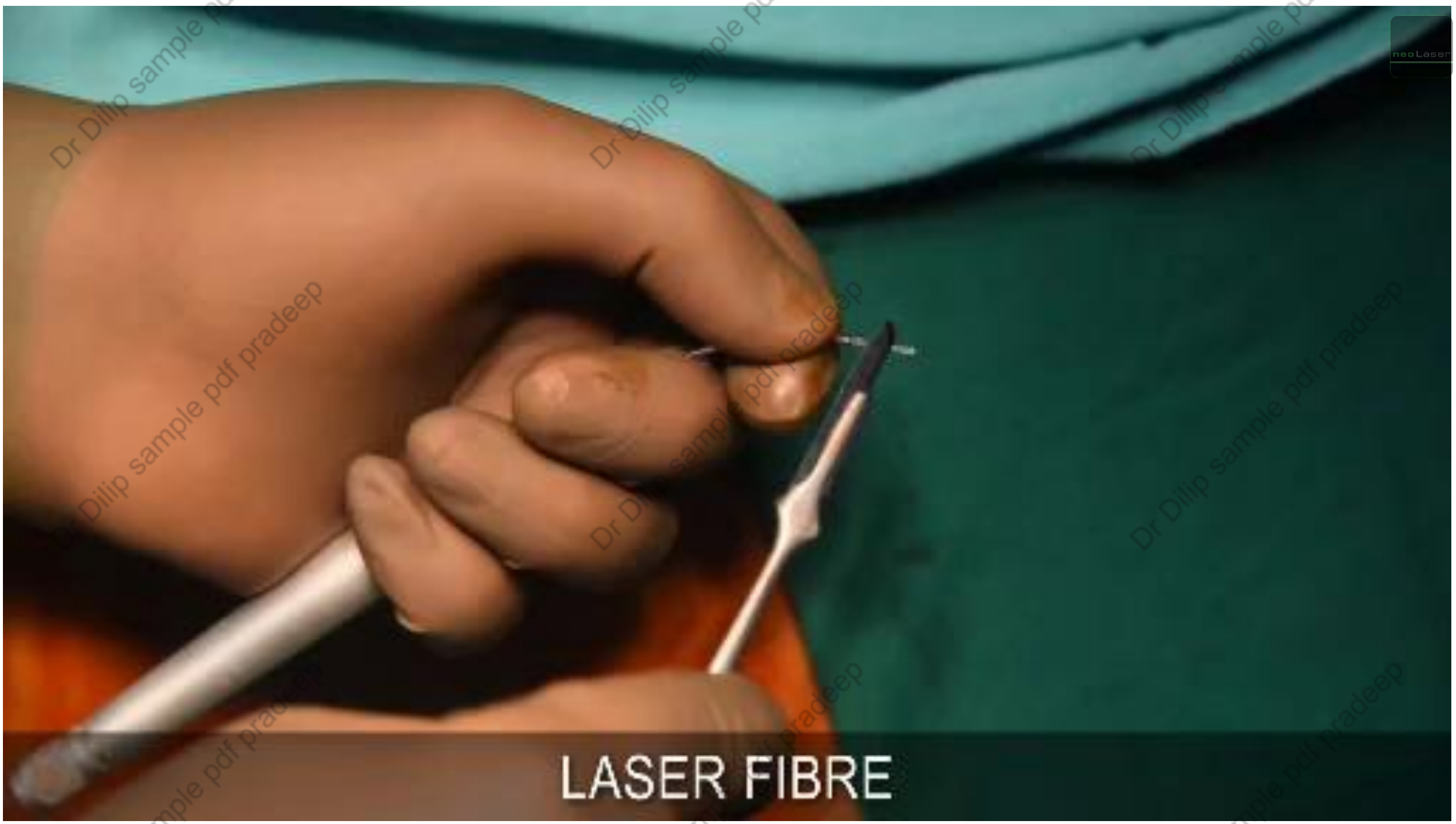
- THE LIGATION OF HEMORRHOIDAL ARTERIES & PEXY OF PROLAPSING RECTAL MUCOSA/SUBMUCOSA SEEM TO BE ONE OF THE MOST EFFECTIVE THERAPEUTIC APPROACHES .THE TARGETED LIGATION OF HEMORRHOIDAL ARTERIES (DEARTERIALIZATION) & THE PLICATION WITH LIFTING OF REDUNDANT & PROLAPSING RECTAL MUCOSA/SUBMUCOSA (MUCOPEXY).
- PROCEDURE:
- WHILE LIGATING,WE DO RECTAL MUCOPEXY TO LIFT THE ANAL CUSHION UP.CONFIRM PROPER LIGATION OF VESSELS BY ABSENT PULSE DISTAL TO LIGATURE.WHEN HEMORRHOIDS ARE BIG,PRESS IT WITH BACK OF THE FORCEF.WHILE YOU APPLY KNOT,ASSISTANT MILKS UP THE HEMORRHOIDAL MASS TO AVOID VENOUS CONGESTION.

COLOPROCT,VOLUME 2 JUNE 2018 CARLO RATTO


HEMORRHOIDAL ARTERY LIGATION


RECTAL MUCOPEXY


FIXING LASER FIBRE (BARE)


LASER FIBRE


neo Laser
NEO LASER
8.00
W
CW
000
Standby
neoV

THIRD & FORTH STEPS

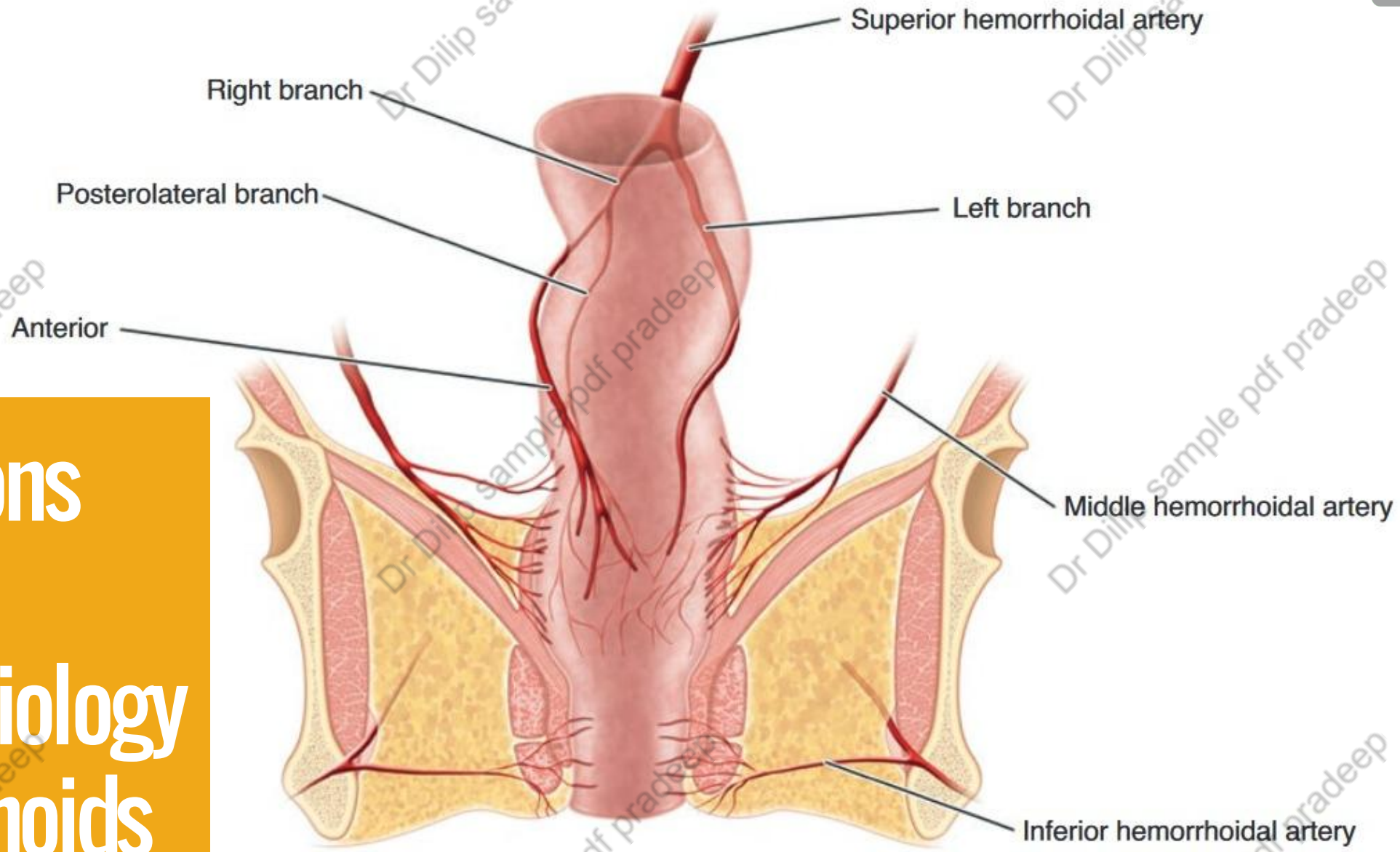
- Entry of bare laser fiber about half cm distal to intersphincteric space go proximal to the hemorrhoidal masss directly on to the pedicle.
- Give laser energy to pedicle,then fan shaped movement in submucous plane & give energy to collateral , anastomosing vessels ESPECIALLY THE POSTEROLATERAL & TRANSMURAL BRANCHES OF SUPERIOR HEMORRHOIDAL ARTERY.IT ENURES LESS RECURRENCE.
- IN 4TH STEP GIVE SOME LASER ENERGY TO INTRA HEMORRHOIDAL MASS


LASER HEMORRHOIDALPLASTY

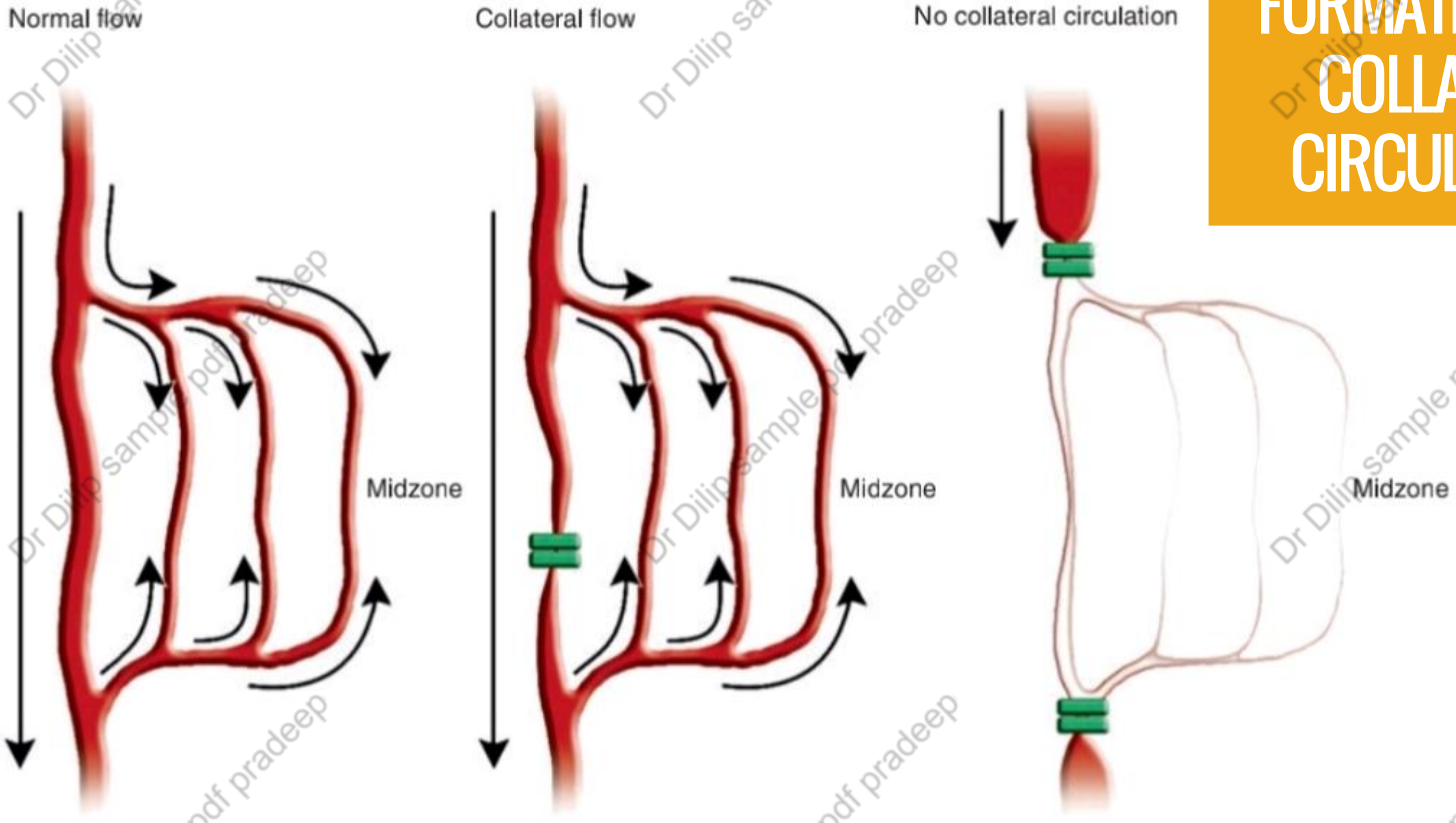
LESS RECURRENCE

- RECURRENCE OCCURS DUE TO
- 1. FORMATION OF COLLATERALS
- 2.PERSISTENCE OF LARGER CALIBER OF SUPERIOR HEMORRHOIDAL ARTERY IN HEMORRHOIDS
- 3.INABILITY TO LIGATE POSTEROLATERAL & TRANSMURAL BRANCHES OF SUPERIOR HEMORRHOIDAL ARTERY
- HYBRID HEMORRHOIDOPLASTY WITH FGHAL WITH RECTAL MUCOPEXY APPEARS TO BE A BETTER CHOICE,LEADING TO LESSER RECURRENCE

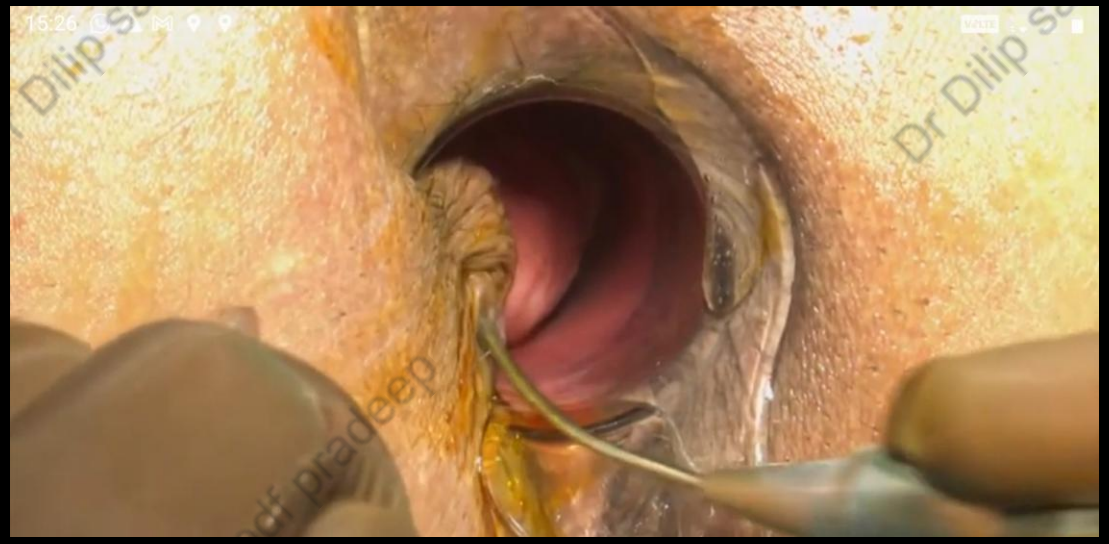
Anal Cuhions and Pathophysiology of Hemorrhoids



FORMATION OF COLLATERAL CIRCULATION



EXT. HEMORRHOID BEFORE LASER ABLATION



EXT.HEMORRHOID AFTER LASER ABLATION

4th DEGREE HEMORRHOIDS

Male 78 year old
Grade IV prolapse with bleeding

GRADE IV PROLAPSE WITH BLEEDING

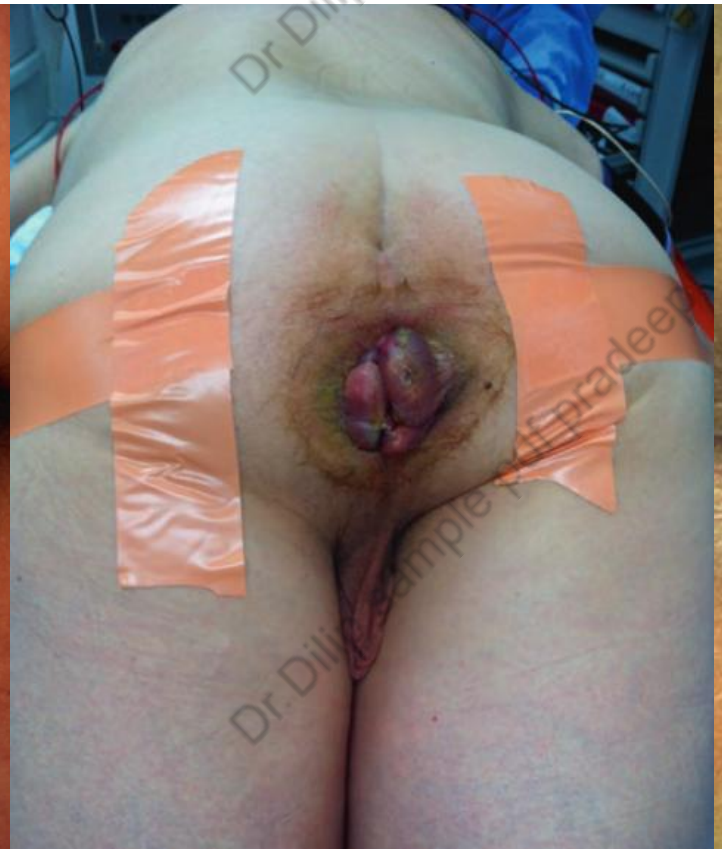
Fmale 54 year old
Grade IV prolapse with bleeding

CONTRAINDICATIONS OF LASER TREATMENT PROLAPSED THROMBOSED GANGRENOUS HEMORRHOIDS

THROMBOSED HEMORRHOIDS

- EXTERNAL HEMORRHOIDS ARE FORMED BY THE DILATATION OF THE INFERIOR HEMORRHOIDAL PLEXUS
- THE IDEAL TRETMENT FOR THROMBOSED EXTERNAL HEMORRHOIDS IS EXCISION
- IN THROMBOSED INTERNAL HEMORRHOIDS,BLOOD CLOT EVACUATION WITH FGHAL WITH RECTAL MUCOPEXY WITH LASER HEMORRHOIDOPLASTY IS CONSIDERED.
- IN STRANGULATED,ULCERATED & NECROSED HEMORRHOIDS THE TREATMENT OF CHOICE REMAINS EXCISIONAL HEMORRHOIDECTOMY.LASER HAS NO ROLE.

ACUTELY THROMBOSED HEMORRHOIDS



HEMORRHOIDAL CRISIS

THROMBOSED EXTRNAL HEMORRHOID.

INJECTION HYALURONIDASE IN HEMORRHOIDAL CRISIS

- AS AN ADJUCT TO SURGICAL HEMORRHOIDECTOMY FOR HEMORRHOIDAL CRISIS,INJECTION WITH LOCAL ANAESTHETIC WITH THE ADDITION OF HYALASE SIGNIFICANTLY REDUCES HEMORRHOIDAL OEDEMA,ALLOWING FOR SURGICAL HEMORRHOIDECTOMY TO BE PERFORMED SAFELY WITHOUT EXCESSIVE REMOVAL OF PERIANAL TISSUE & WITH PRESERVATION OF SPHINCTER.
- AVAILABLE AS-POWDER FOR SOLUTION-1500 I.U.

N.KOLBE TECHNIQUES IN COLOPROCTOLOGY 2015

(A). INJECTING HYLASE INTO THE HEMORRHOIDS.

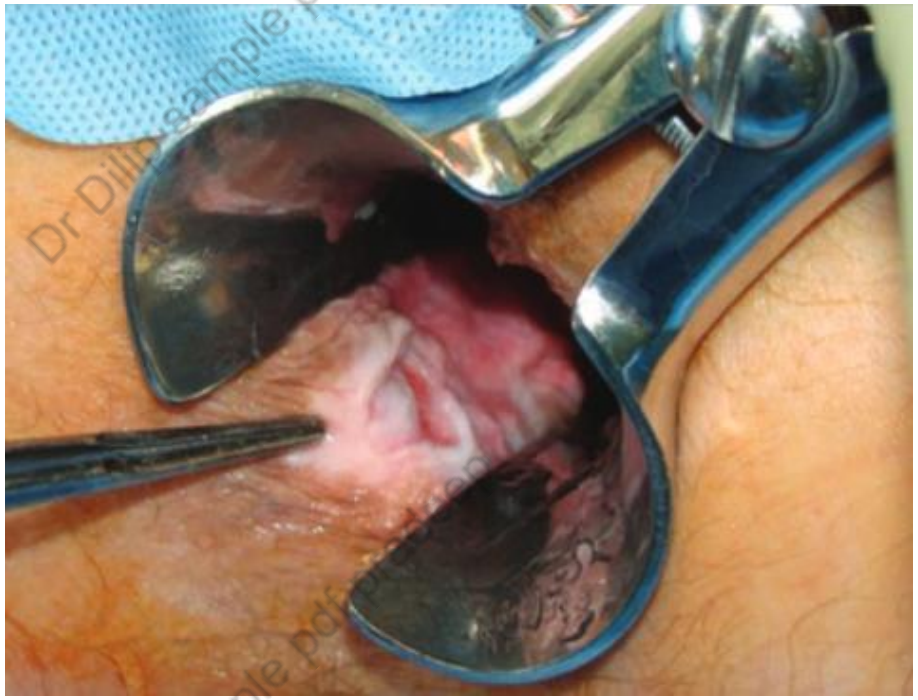
(B). IMMEDIATE REGRESSION.

ANAL FISSURE

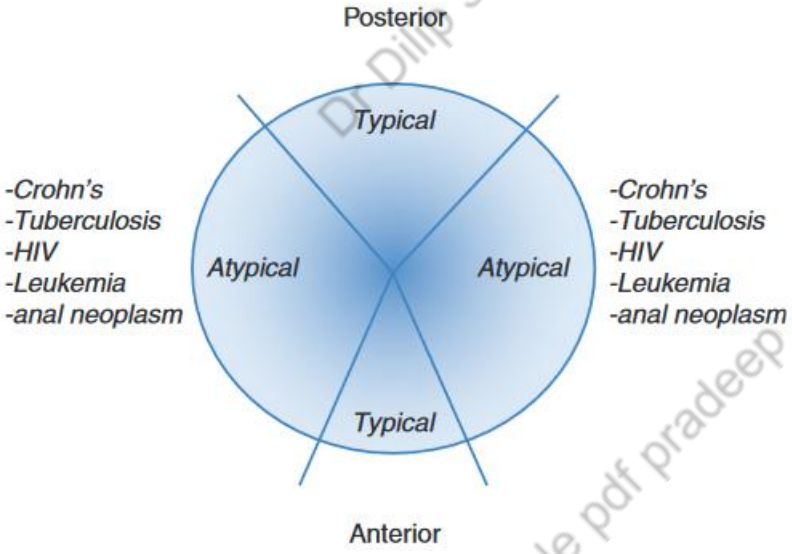
- The eatiology of an anal fissure is debatable.
- Many patients may experience constipation or diarrhea & never develop a fissure.
- A high resting pressure of the anal canal.(hypertonia)
- Lockhart Mummery postulated that anal mucosa is best supported laterally & weakest post.ly. The external sphincter fibers are elliptical that split around the anus.In females the length the ext sph length is half,leading to decrease anterior support.This is believed to cause 10% ant fissures in females.
- Goligher proposed that the internal sphincter is spastic. Hence fissures are limited to the dentate line except those linked with inflammatory bowel disease.
- On doppler laser flowmetry it is postulated that,the post. Midline had the lowest perfusion compared to other quadrants of the anal canal.
- THE GOAL OF ANAL FISSURE TREATMENT IS TO DECREASE ELEVATED ANAL RESTING TONE.OPERATIVE PROCEDURES PRODUCE PERMANENT REDUCTION IN MAXIMUM RESTING ANAL PRESURES.
- LATERAL INTERNAL SPHINCTEROTOMY is the treatment of choice FOR REFRACTORY FISSURES.
- POST. INT. SPHINCTEROTOMY SHOULD BE AVOIDED.IT MAY RESULT IN KEY HOLE DEFORMITY,which may lead to leakage through the this groove & incontinence of gas &/or stool

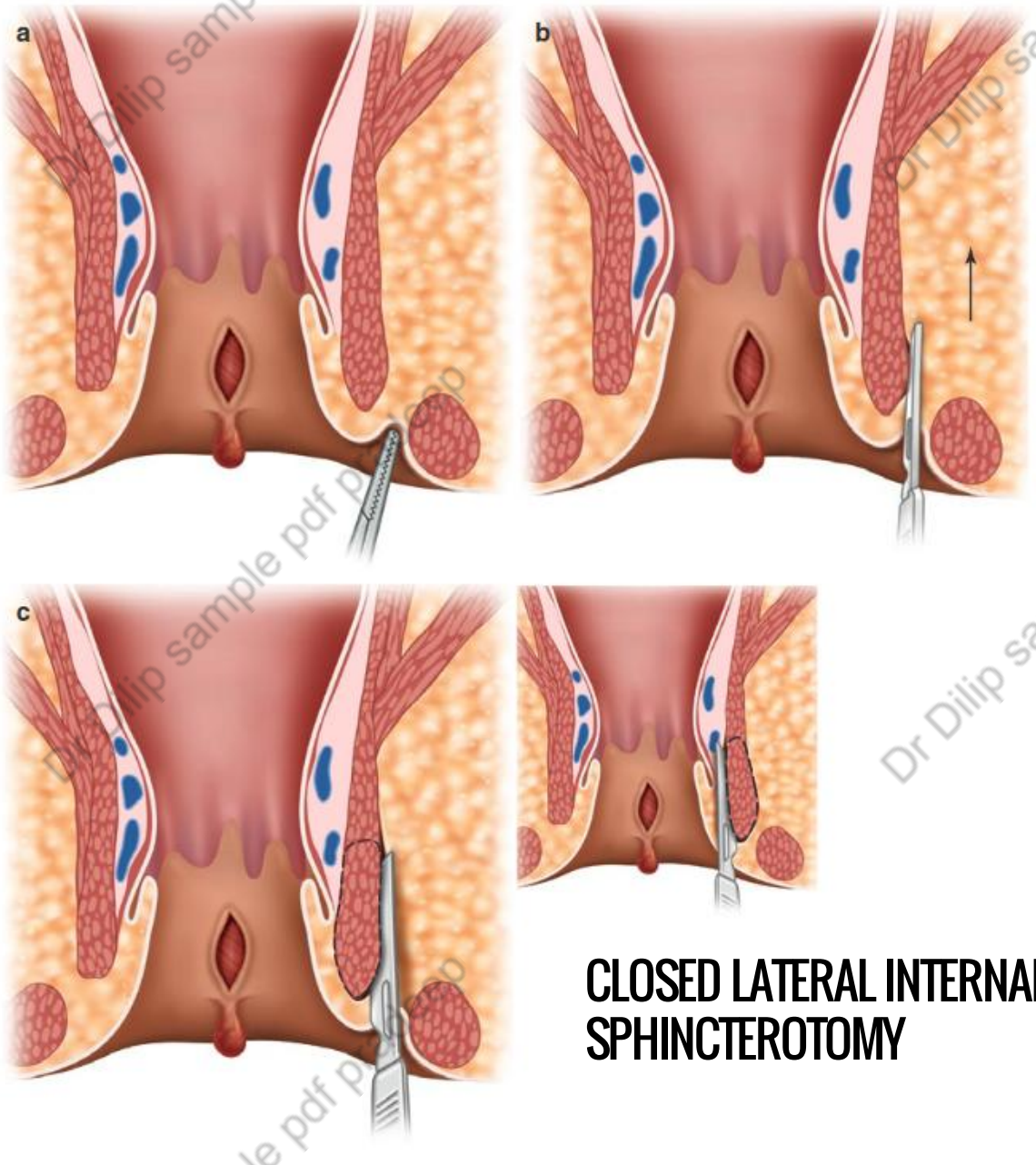
Chronic fissure with external sentinel tag. internal hypertrophied papilla, and thickened internal anal sphincter muscle

Acute fissure with clear edges and no signs of chronicity of sphincter hypertrophy. (Courtesy of Richard P. Billingham, MD)

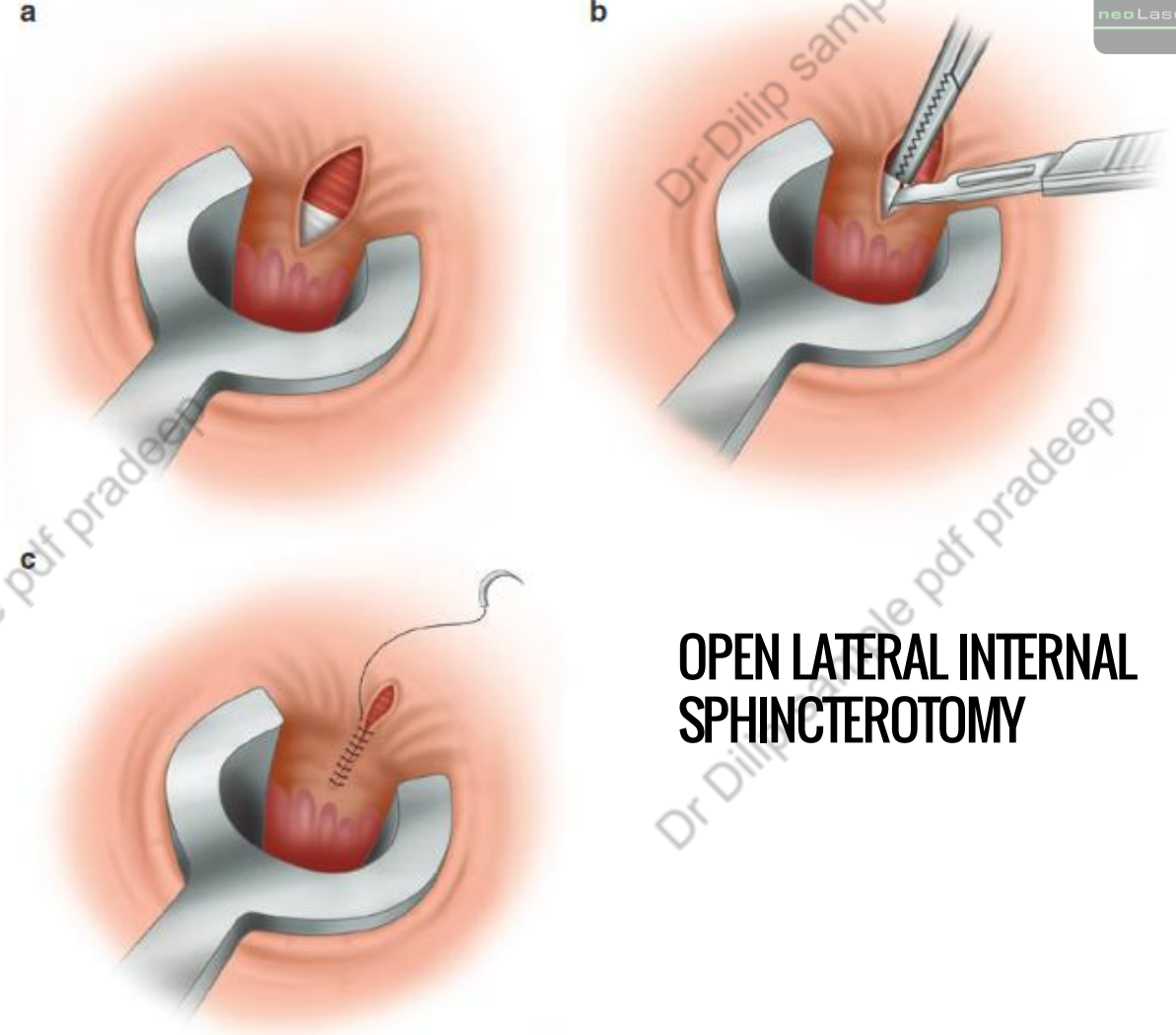


Atypical fissure with skin changes, broad base, and lateral location. (Courtesy of Sam Atallah, MD)





CLOSED LATERAL INTERNAL SPHINCTEROTOMY



OPEN LATERAL INTERNAL SPHINCTEROTOMY


neoLaser
NEO LASER
10.0
W
CW
--
000
EVLA ABOVE KNEE
7.5W 6SEC
Standby
neoV

LASER CLOSED LATERAL INTERNAL SPHINCTEROTOMY

- 1.ONE CC INJ.LIGNOCAINE WITH ADRENALINE IS INJECTED AT 4 OCLOCK POSITION NEAR MUCOCUTANEOUS JUNCTION TO SEPARATE MUCOSA FROM THE SPHINCTERIC MUSCLES.
- 2.INTRODUCE THE TIP OF THE LASER HAND INTRUMENT BETWEEN MUCOSA & SPHINCTER HORIZONTALLY AT 4OCLOCK POSITION ,GO UPTO DENTATE LINE.
- 3.ROTATE THE HAND INSTRUMENT 90 DEGREES SOTHAT TIP OF THE LASER FIBER IS POINTING TOWARDS THE INTERNAL SPHINCTER.
- 4.THEN GIVE ABOUT 80 TO 120 JOULES ENERGY (10 TO 12W) FROM DENTATE LINE TO MUCOCUTANEOUS JUNCTION TO DO INTERNAL SPHINCTEROTOMY.

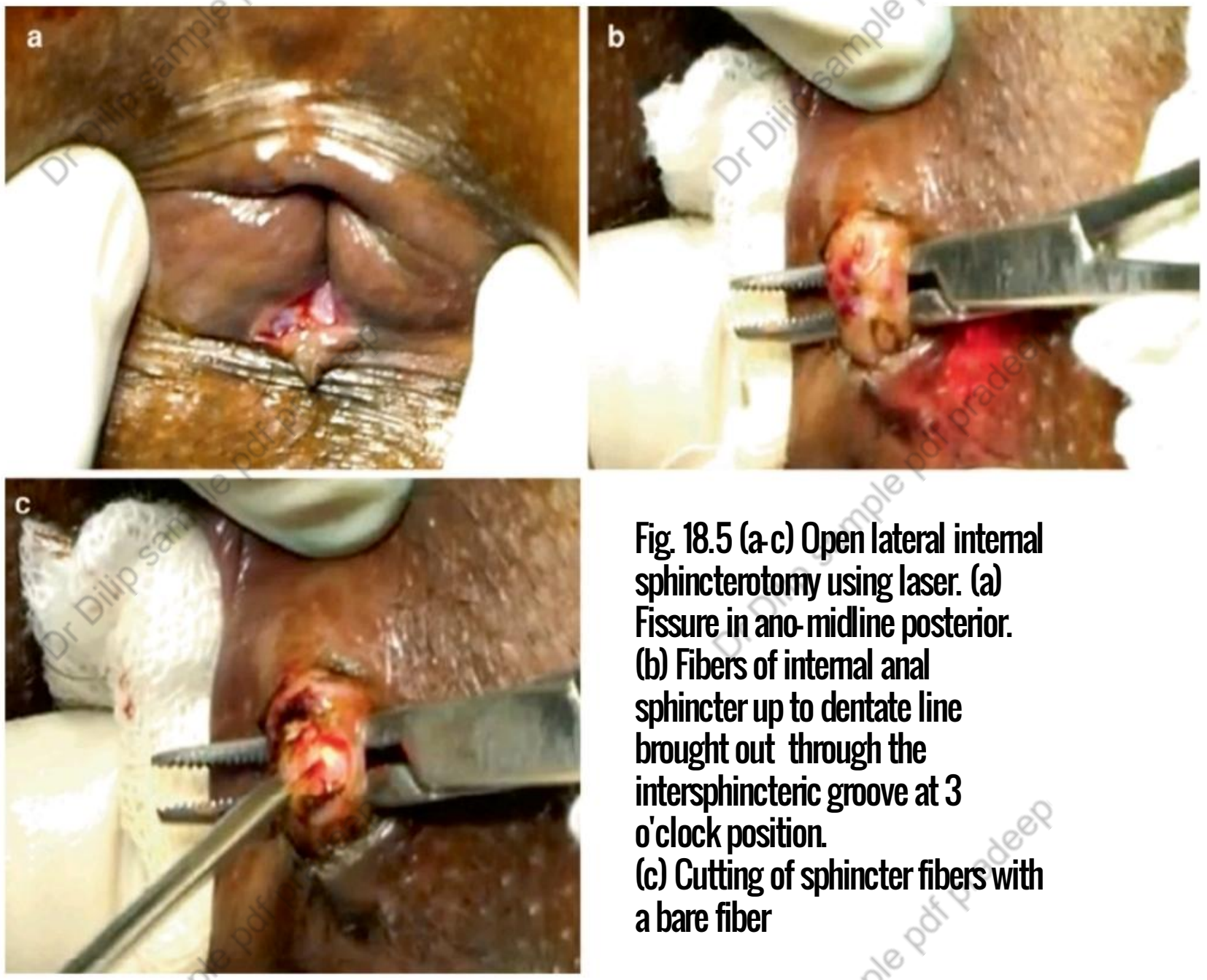


Fig. 18.5 (a-c) Open lateral internal sphincterotomy using laser. (a) Fissure in ano-midline posterior. (b) Fibers of internal anal sphincter up to dentate line brought out through the intersphincteric groove at 3 o'clock position. (c) Cutting of sphincter fibers with a bare fiber

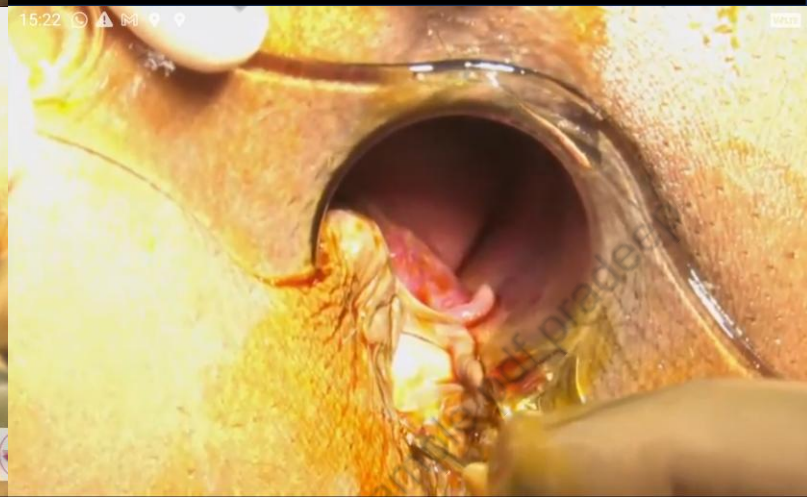
LASER OPEN LATERAL INTERNAL SPHINCTEROTOMY

OPEN CLIS

- THE METHOD INVOLVES A DIRECT INCISION & EXPOSURE OF INTERNAL SPHINCTER FOR PRECISE CUTTING.THE INTERNAL SPHINCTER MUSCLE IS DIRECTLY VISUALIZED & CONTROLLED CUT IS MADE TO REDUCE THE SPHINCTER'S RESTING PRESSURE,ALLOWING THE CHRONIC FISSURE TO HEAL.
- COMPARED TO OPEN CLIS ,LASER CLIS OFFER PATIENTS WITH POTENTIALLY FEWER CMPLICATIONS & QUICKER RECOVERY TIMES.

neoLaser

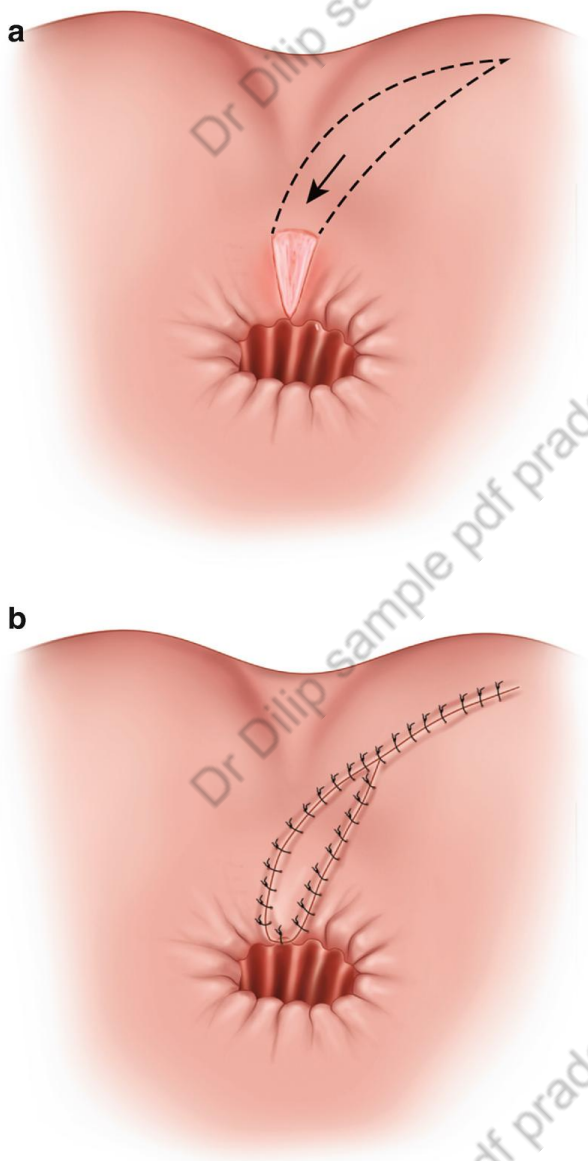
LASER ABLATION OF HYPERTROPHIED ANAL PAPILLA



ANAL STRICTURE

- ANAL STRICTURE AIMS TO RELEIVE THE NARROWING OF THE ANAL CANAL,WHICH CAN CAUSE SIGNIFICANT DISCOMFORT & DIFFICULTY WITH BOWEL MOVEMENTS.TREATMENT OPTIONS RANGE FROM CONSERVATIVE APPROACHES TO SURGICAL INTERVENTIONS,DEPENDING UPON SEVERITY OF THE STRICTURE.
- 1. BOTOX INJECTIONS INTO THE SPHINCTER TO TEMPORARILY RELAX THE MUSCLES
- 2. BALLON DILATATION UNDER ANAESTHESIA
- 3.INTERNAL SPHINCTEROTOMY
- 4. ANOPLASTY
- 5.ADVANCEMENT FLAP PROCEDURES
- 6.FOUR QUADRANT LASER INTERNAL SPHINCTEROTOMY

ANOPLASTY WITH OR WITHOUT PARTIAL INTERNAL SPHINCEROTOMY FOR ANAL STENOSIS

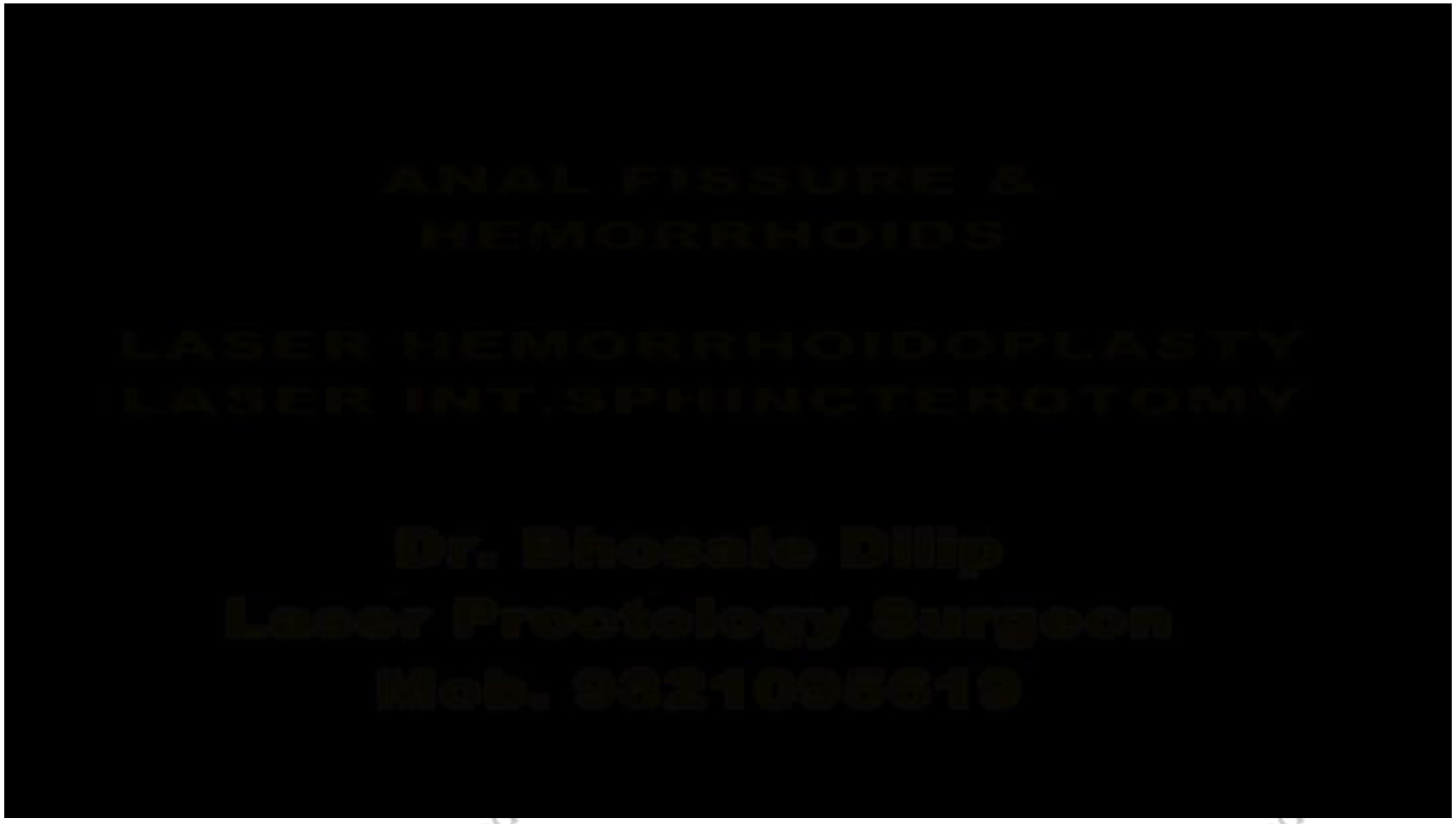


- ANOPLASTY IS A SAFE METHOD IN RELEIVING SYMPTOMS
- IN SELECTED CASES PARTIAL LATERAL INTERNAL SPHINCTEROTOMY
- IN SOME CASES ANOPLASTY WITHOUT PARTIAL LATERAL INTERNAL SPHINCTEROTOMY DO NOT LEAD TO RECURRENCE OF STRICTURE .PATIENT SELECTION IS CRITICAL

ANAL STENOSIS–FOUR QUADRANT LASER INTERNAL SPHINCTEROTOMY

Fig. 1 – Pre-op anal stenosis.

Fig. 2 – Dilated anus after four quadrant laser sphincterotomy.



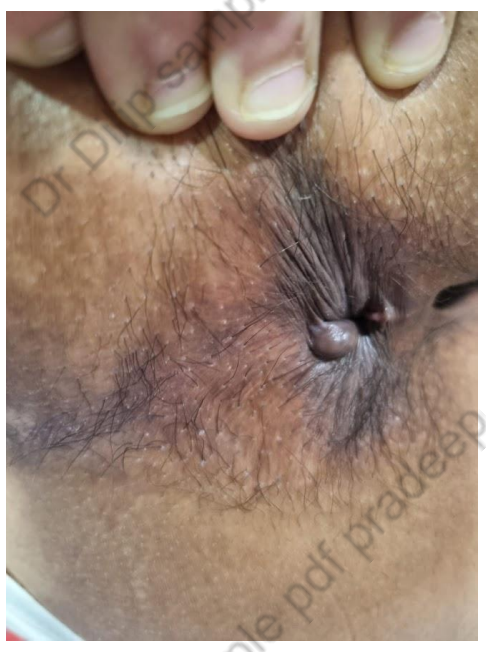


Fig. 11.8 Anal stricture

Fig. 12.10 Strangulated, gangrenous hemorrhoids

Non-excisional laser therapies for hemorrhoidal disease: a systematic review of the literature

Gregoire Longchamp[1] · Emilie Liot[1] · Jeremy Meyer[1] · Christian Toso[1] · Nicolas C. Buchs[1] · Frederic Ris[1]

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Abstract

Non-excisional laser therapies are emerging treatment for grades II and III hemorrhoidal disease (HD). However, so far, their efficiency is based on low-level evidence. Therefore, we aimed to systematically review the efficiency of non-excisional laser therapies for HD. MEDLINE/Pubmed, Web of science, Embase, and Cochrane were searched from database implementation until the April 17th, 2020. We included studies reporting at least one of surgical indicators of postoperative outcomes of laser therapies, encompassing laser hemorrhoidoplasty (LH) and hemorrhoidal laser procedure (HeLP). Fourteen studies describing LH and HeLP were included, representing 1570 patients. The main intraoperative complication was bleeding (0–1.9% of pooled patients for LH, 5.5–16.7% of pooled patients for HeLP). Postoperative complications occurred in up to 64% of patients after LH and 23.3% after HeLP. Resolution of symptoms ranged between 70 and 100% after LH and between 83.6 and 90% after HeLP. Moreover, four randomized controlled trials included in our review reported similar resolution after LH compared with hemorrhoidectomy or mucopexy and after HeLP compared with rubber band ligation. Recurrence rate was reported to range between 0 and 11.3% after LH and between 5 and 9.4% after HeLP. When compared with hemorrhoidectomy, LH showed conflicting results with one randomized controlled trial reporting similar recurrence rate, but another reporting decreased recurrences associated with hemorrhoidectomy. Laser therapies showed lower postoperative pain than hemorrhoidectomy or rubber band ligation. LH and HeLP are safe and effective techniques for the treatment of grades II and III HD.

Keywords Hemorrhoids · Laser · Complications · Outcomes

Introduction

Hemorrhoidal disease (HD) is frequent, with an estimated prevalence of 4.4% among the US population [1]. HD is the consequence of an increased inflow into the superior rectal artery, which causes dilatation of the hemorrhoidal plexus. Moreover, degradation of the supportive tissue results in sliding down of hemorrhoids [2]. Hemorrhoids are classified as grade I when they are seen during anoscopy as congested veins, grade II when they prolapse but spontaneously reduce, grade III when they prolapse and need manual reduction, and grade IV when they are irreducible [3]. HD, defined as symptomatic hemorrhoids, can present with pain, itching, bleeding, discharge, or prolapse [4].

Initial treatment of HD consists of lifestyle modifications and administration of phlebotonics. After failure of conservative management, HD is treated with interventional therapies [4]. Open hemorrhoidectomy (HC) was first described in 1937 by Milligan-Morgan [5] and is still considered as the gold standard interventional therapy for advanced stages of HD. However, significant postoperative pain and complications were associated with excision of hemorrhoidal tissue. Therefore, various non-excisional therapies have been developed, such as rubber band ligation (RBL), mucopexy (MP), and more recently laser therapies [4, 6].

Non-excisional laser therapy was initially described in 1998 by Barr et al. [7] with an experimental animal study. Administration of a pulsed laser energy to the submucosal pig rectal tissue allowed coagulation of vessels, with limited damage to the surrounding tissue. Latter, non-excisional laser therapy was applied in humans, with laser hemorrhoidoplasty

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reported in the literature. As shown by a retrospective study [23] of 750 patients with grades I to III HD treated with RBL, the success rate was 89%. Moreover, four RCTs included in our review reported similar resolution after LH compared with HC [14–16] or MP [16] and after HeLP compared with RBL [22]. Another surgical indicator was the recurrence rate, reported between 0 and 11.3% after LH and between 5 and 9.4% after HeLP. In the literature, recurrence rate at 12 months was reported up to 5% after mucopexy [24] and up to 11.1% [25] after hemorrhoidal artery ligation ± mucopexy. Compared with HC, LH showed conflicting results with one RCT reporting similar recurrence rate [15], but another RCT reporting decreased recurrences associated with HC [16]. Another surgical indicator of postoperative outcome was the reoperation rate, reported in 54% of patients after LH [8]. However, Karahaliloglu et al. [8] were the first to report their experience with LH, and this high reoperation rate seemed to decrease with progress in the learning curve. Moreover, two other studies reported no need for reoperation after LH, at 3 and 6 months of follow-up [14, 15]. Nevertheless, a long-term follow-up is mandatory to identify recurrences and the potential need for further intervention.

Thirdly, laser therapies conferred the advantages of a quick return to normal activities and low postoperative pain. The latter is explained by the absence of excision of tissue below the dentate line, where pain fibers are present [26]. Compared with HC, two RCTs showed decreased postoperative pain score associated with LH [15, 16]. Compared with RBL, another RCT showed decreased postoperative pain associated with HeLP [22]. However, pain comparison between studies is hazardous as postoperative analgesia varied significantly among studies.

The main limitation of the study is the heterogeneity of included studies. Perioperative characteristics, such as preoperative enema, antibioprophylaxis, anesthesia, and laser techniques, varied significantly among studies. Moreover, while grades II and III HD are good candidates for laser therapies, some studies included grades I and IV HD [8, 11, 20, 21]. Another weakness is the small population size of included studies, with the largest cohort composed of 341 patients [11]. This resulted in a decreased statistical power. Moreover, rare complications may be unidentified.

In this review, surgical indicators were used as surrogates of postoperative outcomes. Nevertheless, they were irregularly reported among studies. Moreover, Giamundo et al. [21] reported 9.7% of symptomatic persistence in the results section, but this was latter mentioned as persistence and/or recurrence in the discussion section. Inconsistency with outcomes definition precluded a meticulous analysis. As demonstrated by a recent systematic review [27], assessment of treatment efficiency should

Overall, laser therapies appeared to be safe and effective techniques for the treatment of HD. Moreover, the learning curve is quick and was estimated from three to five cases [14]. These techniques could be alternatives to RBL or hemorrhoidal artery ligation ± mucopexy for the treatment of grade II or III HD. Only one RCT compared HeLP with RBL [21] and future research should focus on the comparison between laser and other non-excisional therapies of HD. Another unanswered question is the utility of the Doppler for the laser procedure. As reported by two RCTs [28, 29], the Doppler use did not show benefits for the hemorrhoidal artery ligation technique. Finally, benefits of LH or HeLP should be compared.

Conclusions

To conclude, non-excisional laser therapies, including LH and HeLP, are safe and effective. They should be considered for the treatment of grades II and III HD unresponsive to conservative management.

Authors' contributions GL and EL conceived and designed the study. GL and EL acquired the data. GL, EL, JM, CT, NB, and FR interpreted the data. GL, EL, JM, CT, NB, and FR contributed to the writing of the manuscript and to its critical revision. GL, EL, JM, CT, NB and FR approved the final version of the manuscript.
the article.

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Compliance with ethical standards

Conflict of interest The authors declare that they have no conflict of interest.

Ethics approval Not applicable.

Consent to participate Not applicable.

Consent for publication Not applicable.

Code availability Not applicable.

Systematic review and meta-analysis of postoperative pain and symptoms control following laser haemorrhoidoplasty versus Milligan-Morgan haemorrhoidectomy for symptomatic haemorrhoids: a new standard

Varen Zhi Zheng Tan[1] · Ern-wei Peck[1] · Sharmini S. Sivarajah[2] · Winson J. Tan[2] · Leonard M. L. Ho[2] · Jia-Lin Ng[2] · Cheryl Chong[2] · Darius Aw[2] · Franky Mainza[3] · Fung-Joon Foo[2] · Frederick H. Koh[2]

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Abstract

Purpose Haemorrhoidal disease (HD) plagues one in every ten people, with a plethora of surgical treatment modalities, of which laser haemorrhoidoplasty (LHP) is a relatively novel option. This systematic review and meta-analysis objectively evaluated the efficacy, safety, and tolerability of LHP compared against conventional (Milligan-Morgan) open haemorrhoidectomy (CoH).

Method A comprehensive search of MEDLINE, EMBASE, CENTRAL, and Google Scholar was conducted. Randomised controlled trials (RCTs) and comparative cohort studies (CCSs) which compared LHP against CoH were included, with postoperative pain as the primary outcome. Secondary outcomes included intraoperative characteristics, short- and moderate-term outcome, and complications.

Results A total of 12 studies (6 RCTs and 6 CCSs), with a total of 1824 patients, were analysed. LHP resulted in reduced postoperative pain for the first day (mean difference of 2.07 visual analogue scale units), week, and month. The mean dosage and duration of postoperative analgesia use was similarly lower, with a mean difference of 4.88 mg (morphine) and 2.25 days, respectively. Crucially, recurrence was equivocal (HR: 0.72, CI: 0.21–2.40) at a mean follow-up duration of 8.58 ± 9.55 months. LHP resulted in lower blood loss and was 12.74 min shorter on average. LHP's postoperative recovery time was 9.03 days less with equivalent or decreased risk of most short- and moderate-term complications except anal thrombosis.

Conclusion Our study suggests that LHP is more tolerable than CoH, providing patients with superior postoperative quality of life at equivalent moderate-term efficacy. These findings contribute to improved understanding of LHP and its potential at enhancing the quality of HD care.

Keywords Haemorrhoids · Laser · Technique · Surgery · Outcomes

Introduction

HD is widely prevalent, plaguing up to 11% of the population [1–3]. The disease is defined by the abnormal dilatation and distortion of vasculature with subsequent connective tissue destruction within the anal cushion [4]. The aetiopathogenetic theory concerning HD is multifactorial and complex; factors contributing to its pathogenesis are manifold. It is mostly thought to arise from vascular tone dysregulation and vascular hyperplasia, contributed by elevated intraabdominal pressure and increased inflow of the superior rectal artery, ultimately causing dilatation

Varen Zhi Zheng Tan and Ern-wei Peck contributed equally to this work.

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Original Article

Laser Hemorrhoidopexy: An Observational Study of 1088 Patients Treated at Single Center

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Healing Hands Clinic, Pune, Maharashtra, India

ABSTRACT

Introduction: The present study evaluates the efficacy of laser hemorrhoidopexy, an innovative minimally invasive procedure in 1088 patients. **Methods:** A hospital based retrospective prospective study planned with the Aim to explore effectiveness and long-term outcomes of Laser Hemorrhoidopexy as the procedure is easy to learn and replicate and will produce similar results. **Aim and Objectives:** This study aimed to explore the effectiveness and long-term outcomes of laser hemorrhoidopexy as the procedure is easy to learn and replicate and will produce similar results. A retrospective prospective evaluation of preoperative symptoms of hemorrhoids, complications during intra and postoperative period, and healing were recorded. Visual Analog Scale was used to record pain and postoperative patient satisfaction for 6 months, and telephonic follow-up was taken for 48 months, ranging from 24 to 72 months. **Results:** A total of 1088 patients with a mean age of 39.51 ± 12.52 years were observed. The mean surgery time was 25 min, and the hospitalization duration was 16 h. Mild pain was reported by 23% of subjects postoperatively and 6% of patients at the end of the week. Complications during the early period included minor bleeding (5.88%) and urine retention (4%–5%). Late postoperative complications were bleeding (6.25%), persistent pain (3.03%), hemorrhoid thrombosis (4.59%), and fissure (5.15%). Patient satisfaction at end of a week showed a highly satisfied response by 76.84%, while dissatisfied by 8%. The recurrence rate was 0.55% with a median follow-up of 2 years. **Conclusions:** Laser hemorrhoidopexy is sphincter saving, simple minimal invasive and safe procedure with less pain, and complications and a high postoperative patient satisfaction rate in Grade II and Grade III hemorrhoids. The recurrence rate in hemorrhoids surgery is negligible if internal mucosal prolapse is corrected with suture mucopexy in two layers.

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KEYWORDS: *Hemorrhoids, laser, laser hemorrhoidopexy, mucopexy, per rectal bleeding*

INTRODUCTION

The origin of the word "hemorrhoid" is seen in Greek literature as a combination of the words "hema" (blood) and "rhoos" (flowing). The flow of blood from the veins of the anus was named as hemorrhoid by Hippocrates.[1-3]

Among anorectal diseases, hemorrhoidal disease ranked first. The global prevalence reported ranges from 2.9% to 27.9%, of which symptomatic cases reported around 4%.[4,5] Studies reported that only one-third of these patients sought the advice of a physician. Age distribution of disease in the literature showed a normal curve with age 45–65 as a peak and a slow decline after 65 years.[4,6] Prevalence in men is seen more than in women.[7]

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Hybrid digitally guided hemorrhoidal artery ligation with laser hemorrhoidoplasty: our experience with a new approach to hemorrhoidal disease

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ABSTRACT

Background: Minimally invasive surgeries are currently advocated in hemorrhoidal disease for better patient satisfaction. The aim of our study is to assess the feasibility, efficacy and safety of a hybrid hemorrhoidal artery ligation under digital guidance with laser hemorrhoidoplasty (Hybrid HAL-LHP) in patients with grade II to III hemorrhoids.
Methods: In a prospective clinical study, hybrid HAL-LHP was performed in 75 consecutive patients between May 2018 to February 2020 with grade II to III hemorrhoids. Hemorrhoidal artery ligation was done by digital palpation followed by laser hemorrhoidoplasty using a 1470 nm diode laser. Postoperative pain and bleeding, return to work, resolution of symptoms, recurrence and reoperation was assessed on a follow up upto 1 year.
Results: Postoperative pain assessed on Visual analog score (VAS) was 2.82 on 3rd day, 1.28 on 7th day and till 14th day was extremely low. None of the patients had significant intraoperative or spontaneous postoperative bleeding. Most of the patients had some degree of post defecation bleeding till 7th to 14 days which resolved after 2 weeks. After a mean follow up of 16.6 months, we reported a suspected recurrence rate of 5.33%.
Conclusions: Postoperative pain assessed on Visual analog score (VAS) was 2.82 on 3rd day, 1.28 on 7th day and till 14th day was extremely low. None of the patients had significant intraoperative or spontaneous postoperative bleeding. Most of the patients had some degree of post defecation bleeding till 7 to 14 days which resolved after 2 weeks. After a mean follow up of 16.6 months we reported a suspected recurrence rate of 5.33%.

Keywords: Hemorrhoidal disease, Hemorrhoidal artery ligation, Laser hemorrhoidoplasty

INTRODUCTION

Hemorrhoidal disease, with its different manifestations, is not only one of the commonest referrals to the surgical outpatient departments but also a one of the causes for modest deterioration in quality of life to the patient. The worldwide prevalence varies widely in different studies and ranges from 2.9 to 50%. Many of them develop symptoms, however 20 to 30% finally seek medical opinion. The disease is more common in adult men between 45 to 65 years of age.[1,2]

Hemorrhoidal disease, in general are classified into 4 grades. Grade I when they are seen during anoscopy as congested veins, grade II when they prolapse but reduce spontaneously, grade III when they prolapse and need manual reduction, and grade IV when they are irreducible.[3] Symptomatic hemorrhoids, have a variable presentation with pain, itching, bleeding, discharge, or

Author	Study/procedure	Sample size	Complications	Post-operative outcome
Ferhatoglu et al[29]	Laser hemorrhoidoplasty (1470 nm)	47	Post op complications were observed in 5 cases (Anal stenosis- 1, Abscess formation-1, hemorrhage -2, thrombosis- 1)	Post op day 2 mean VAS score 2.85. Recurrence of bleeding: 14.7%. Recurrence of prolapse 21.3%.
Our study	Hybrid digital Guided HAL with Laser hemorrhoidoplasty	75	Minor intraoperative bleeding in 5 (6.6%) patients. Managed with suturing or repeat laser	Post op VAS score 2.82 and 1.28 on day 3rd and day 7th. Recurrence of Bleeding 4 (5.33%) patient. Incomplete resolution of prolapse in 2 patients (4.7%).

None of the patients in our study had spontaneous bleeding post operatively. Most of the patients had few episodes of post defecatory bleeding which lasted for a maximum of 1-2 weeks postoperatively. 5.33% (4) patients reported recurrence of occasional bleeding and 4.7% (2 out of 42) patients reported to have incomplete resolution of prolapse after an average follow up of 16 months. Comparatively Doppler guided HAL has a varying recurrence rate. Pasquale Giordano et al in their systematic review on transanal hemmorhoidal dearterialization reported a relapse rate of 4.8% for grade III hemorrhoids at 1 year follow up in some studies while İbrahim Yilmaz reported a higher recurrence rate of 8% to 12% at 12 and 24 years respectively in their series (Table 3).[26,27]

To the best of our knowledge, our study is possibly the one of the first to combine both hemorrhoidal artery ligation with laser hemorrhoidoplasty. The effectivity of HAL with the use of digital guidance helps in shrinking the size of hemorrhoidal mass initially followed by Laser hemorrhoidoplasty to treat the residual hemorrhoidal plexus. We think that the combination of both the procedures will be able to increase the efficacy while preventing any increase in postoperative discomfort and adverse effects.

The current study certainly has some limitations with respect to a small sample size and relatively short follow up. An analysis of postoperative complications like incontinence on long term would also need to be assessed. A multicentre trial with a larger patient sample would be needed to address the limitations.

CONCLUSION

In spite of the limitations in our study, the fact that our study was mainly focused on the feasibility, safety and short-term outcome of the procedure, we could say that that the hybrid HAL-LHP procedure is easy to perform, has shorter hospital stay with early return to work, minimal postoperative complication, good patient satisfaction and reasonably effective resolution of symptoms in the short term.

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The effects of laser procedure in symptomatic patients with haemorrhoids: A systematic review

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Purpose: Haemorrhoids are normal structures in the human body, only seen as pathological when symptomatic. Nowadays, new techniques have surfaced using a diode laser which, after locating the target arteries, blocks the blood flow while hitting and shrinking the local mucosa/submucosa at a depth of 4 mm. Our work aimed to give a broad view over this new technique and its consequences in the post-operative follow-up with a systematic review.
Methods: EMBASE and MEDLINE databases were consulted, retrieving clinical trials, which mentioned the use of 980 nm diode laser on the treatment of haemorrhoids.
Results: Ten clinical trials analyzing the post-operative effects of laser haemorrhoidectomy were selected, including 2 randomized controlled clinical trials and 1 controlled clinical trial. The overall quality of the trials was low, indicating a high risk of bias.
Conclusion: The laser haemorrhoidectomy procedure revealed a high therapeutic potential, considering the reduced number of postoperative complaints (bleeding/pain), the high symptom resolution and the reduced recurrence, albeit the high heterogeneity between the studies in terms of reported results. Future investigations with higher quality and controlled double-blinded studies obtaining better-categorized results should be conducted in order to better evaluate this procedure and compare it to the current paradigm.

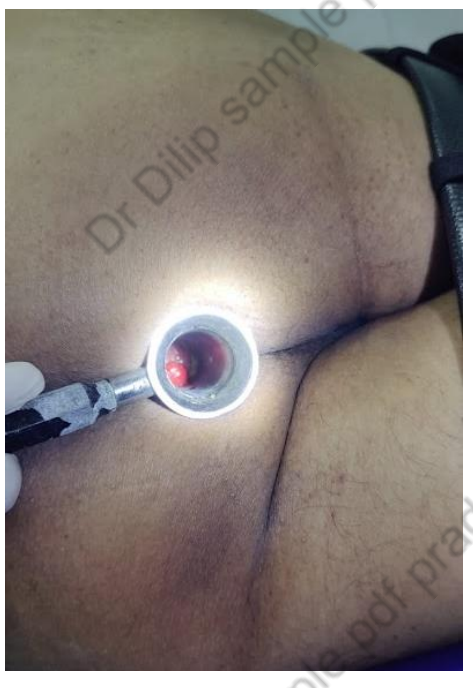
KEYWORDS

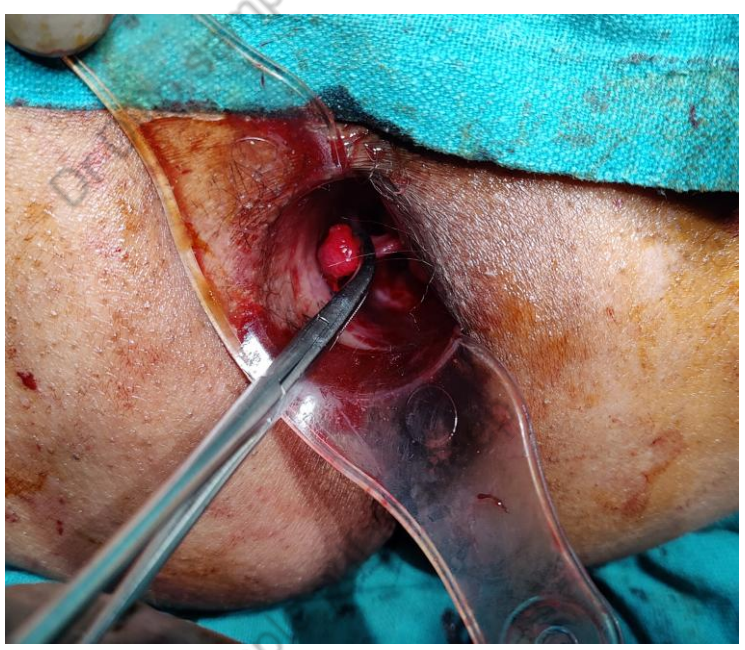
haemorrhoids, diode laser, haemorrhoidectomy, haemorrhoidplasty, HeLP

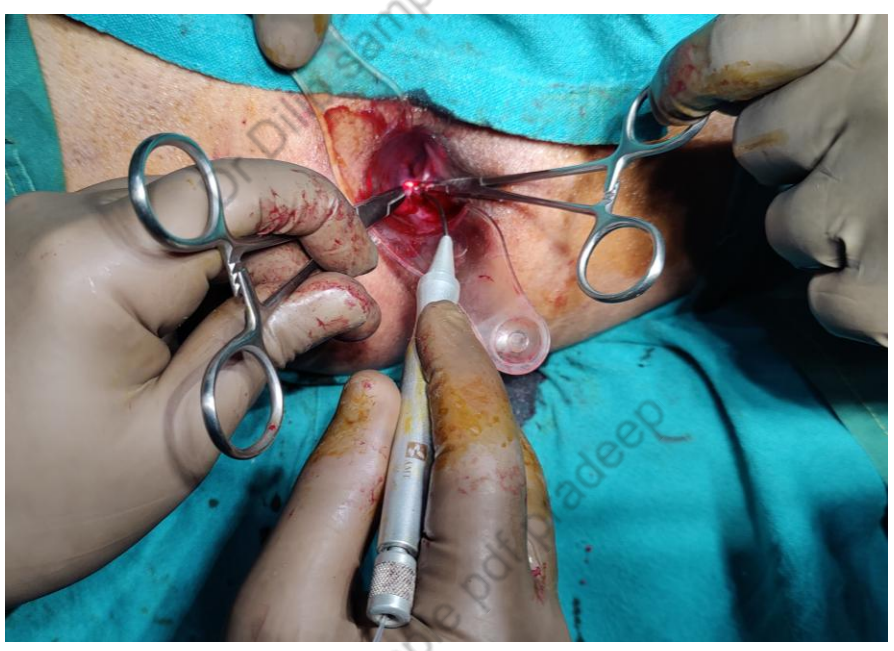
Introduction

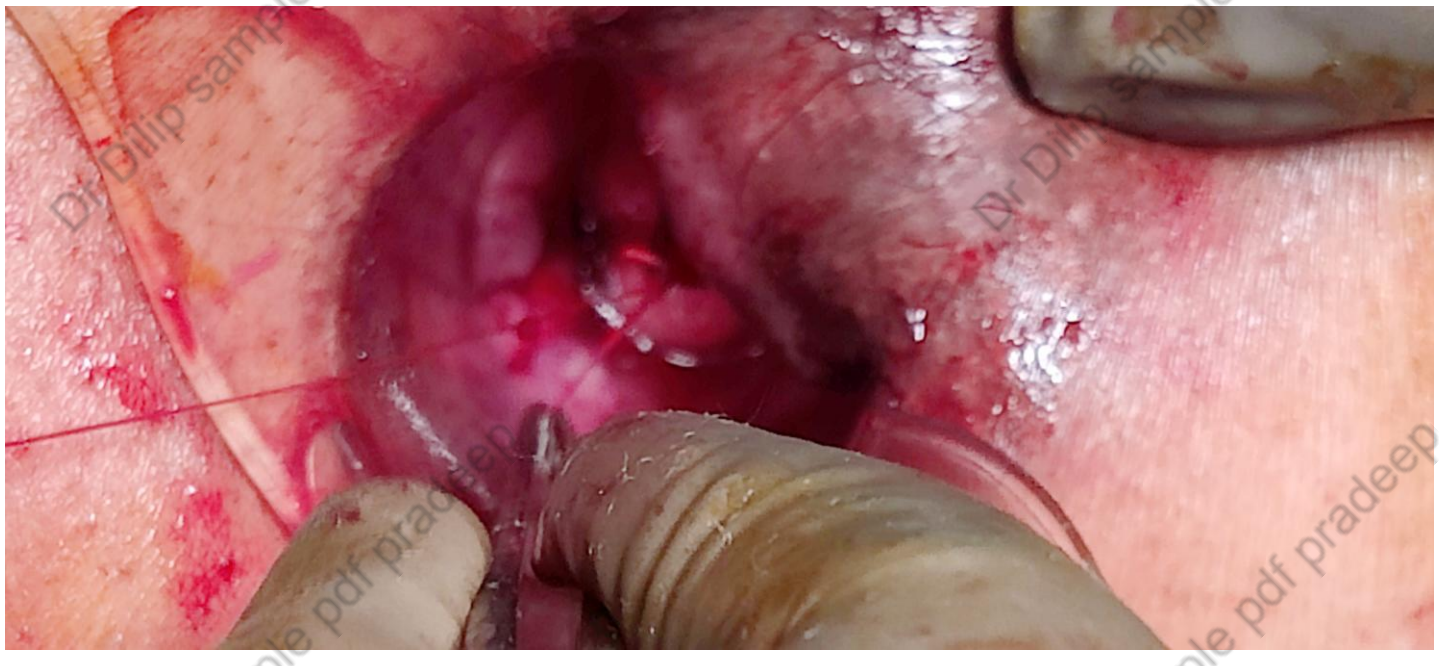
Description of the condition

Haemorrhoids are normal structures of the human body (1–3). They are usually classified by their location: internal (originates above the dentate line and covered by anal mucosa) and external (originates below the dentate line and covered by anoderm) (2, 4). The internal haemorrhoidal plexus presents itself as anal









APPLICATION OF LASER IN PROCTOLOGY

FISTULA IN ANO
LASER TREATMENT

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Experience : 35 Years
Speciality : General & Laparoscopic Surgery

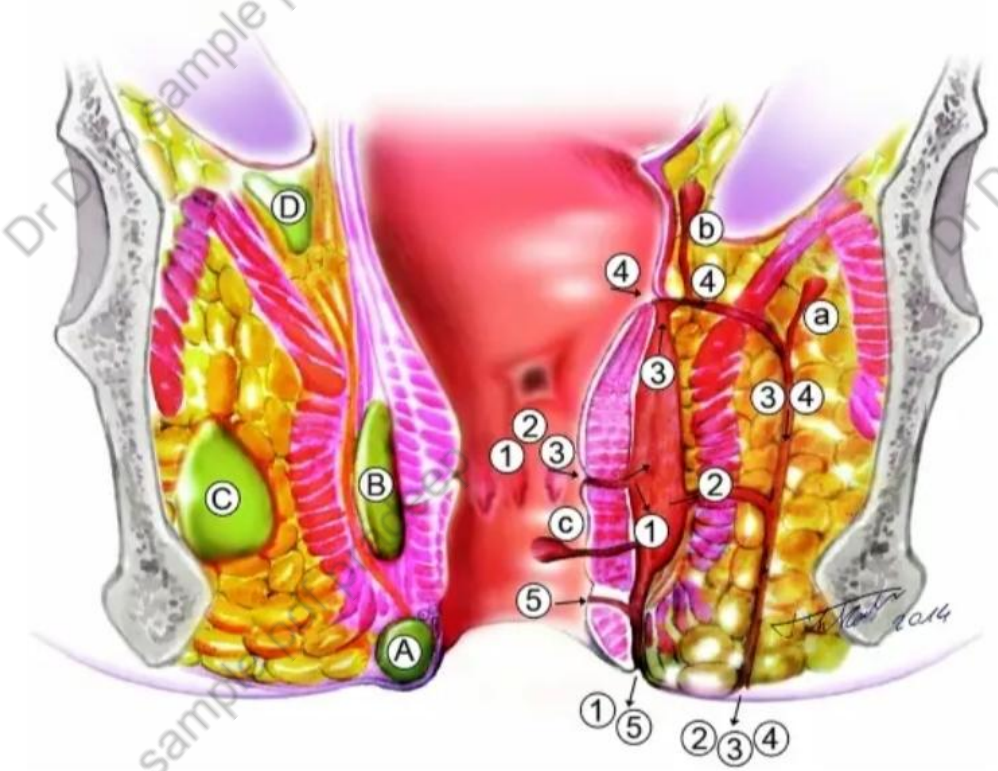


Figure 1 Disease characteristics relevant for fistula management. A fistula is a tract of pus and/or granulation tissue between two epithelial surfaces lined with a fibrous wall. 1º Primary tracts are connections between the internal and external openings (1-5), while secondary tracts are blind extensions (a-c). A tract is defined 'low' when it runs through the lower one third of the external anal sphincter. The course of the fistula tracts is described by the Parks classification. The external sphincter complex, defined by the external sphincter and the puborectal muscle, serves as reference: (1) intersphincteric: the tract penetrates the internal sphincter and runs through the intersphincteric space to the perianal skin; (2) transsphincteric: the tract penetrates both the internal and the external sphincter or the ne puborectal muscle; (3) suprasphincteric: tract runs first upwards in the intersphincteric space, then downwards crossing the levator ani muscle and then reaching the perianal skin; (4) extrasphincteric: tract originates from the rectal wall and runs down through the levator ani muscle, without penetrating the external sphincter or the puborectal muscle. Later a fifth category was added for superficial tracts (5) that did not involve the sphincter complex. Secondary tracts and their relationship to the levator plate (a) infralevator or (b) supralevator and (c) horizontal extension, also known as 'horseshoes', are distinguished. Furthermore proctitis and the presence of abscesses with regard to their localisation (A, perianal; B, intersphincteric; C, ischiorectal; D, suprasphincteric) are also noted.

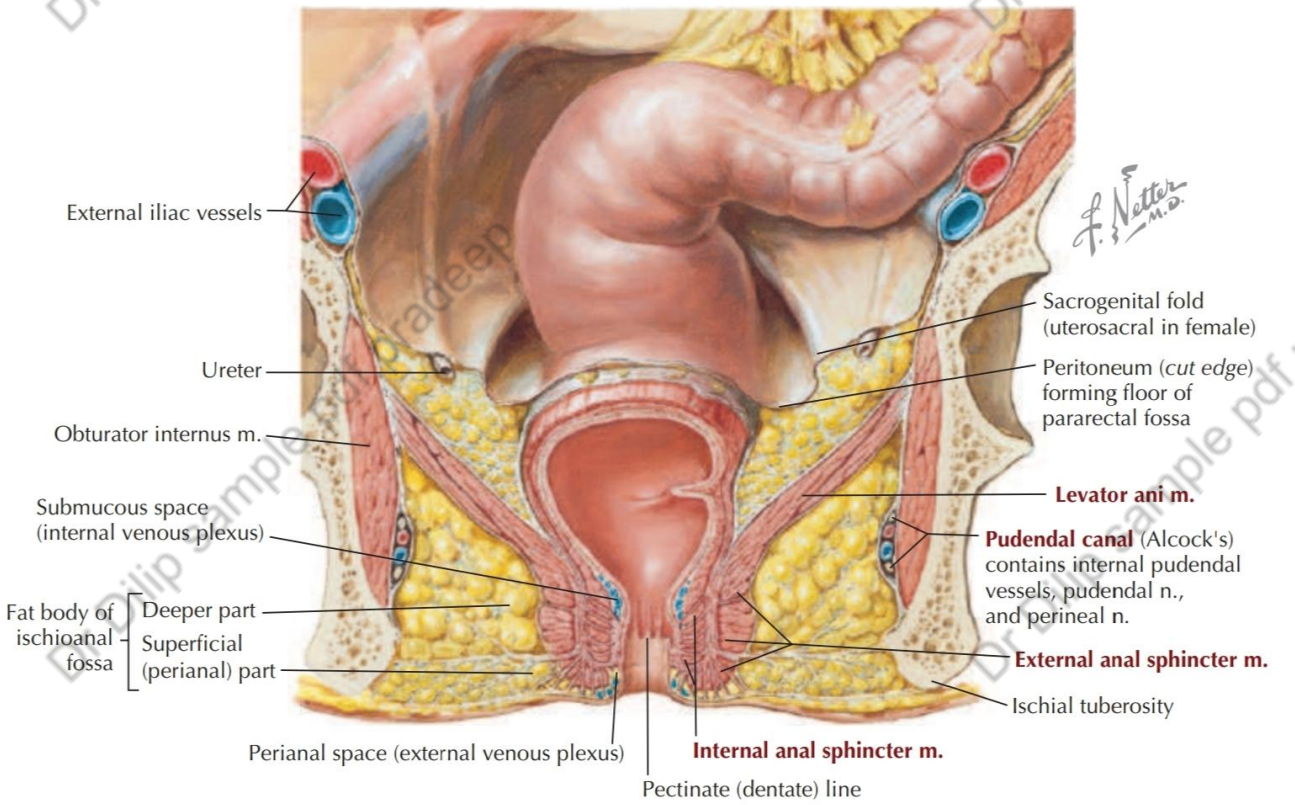


FIGURE 5.20 Anal Canal and Ischioanal Fossae. (From *Atlas of human anatomy,* ed 7, Plate 374.)

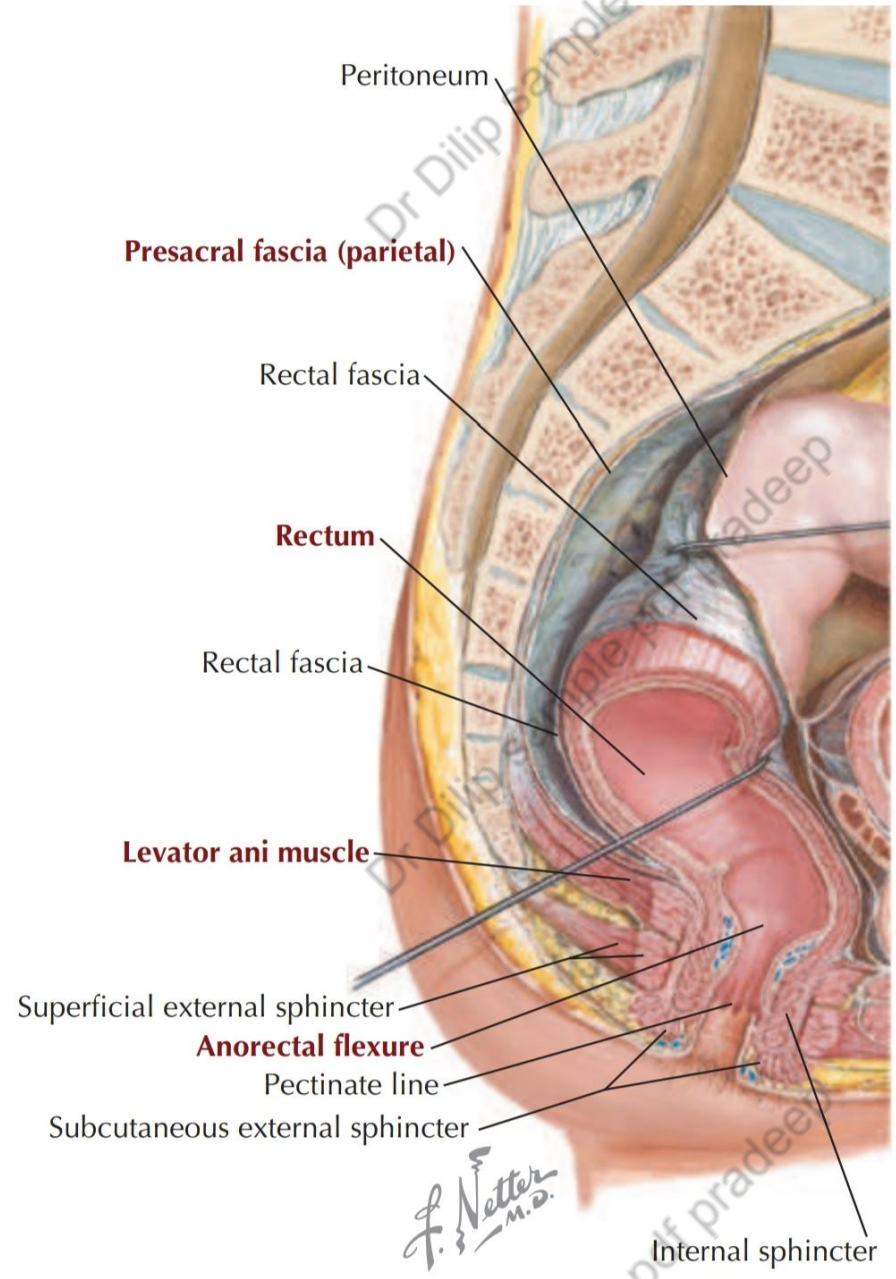


FIGURE 5.5 Rectum and Anal Canal.

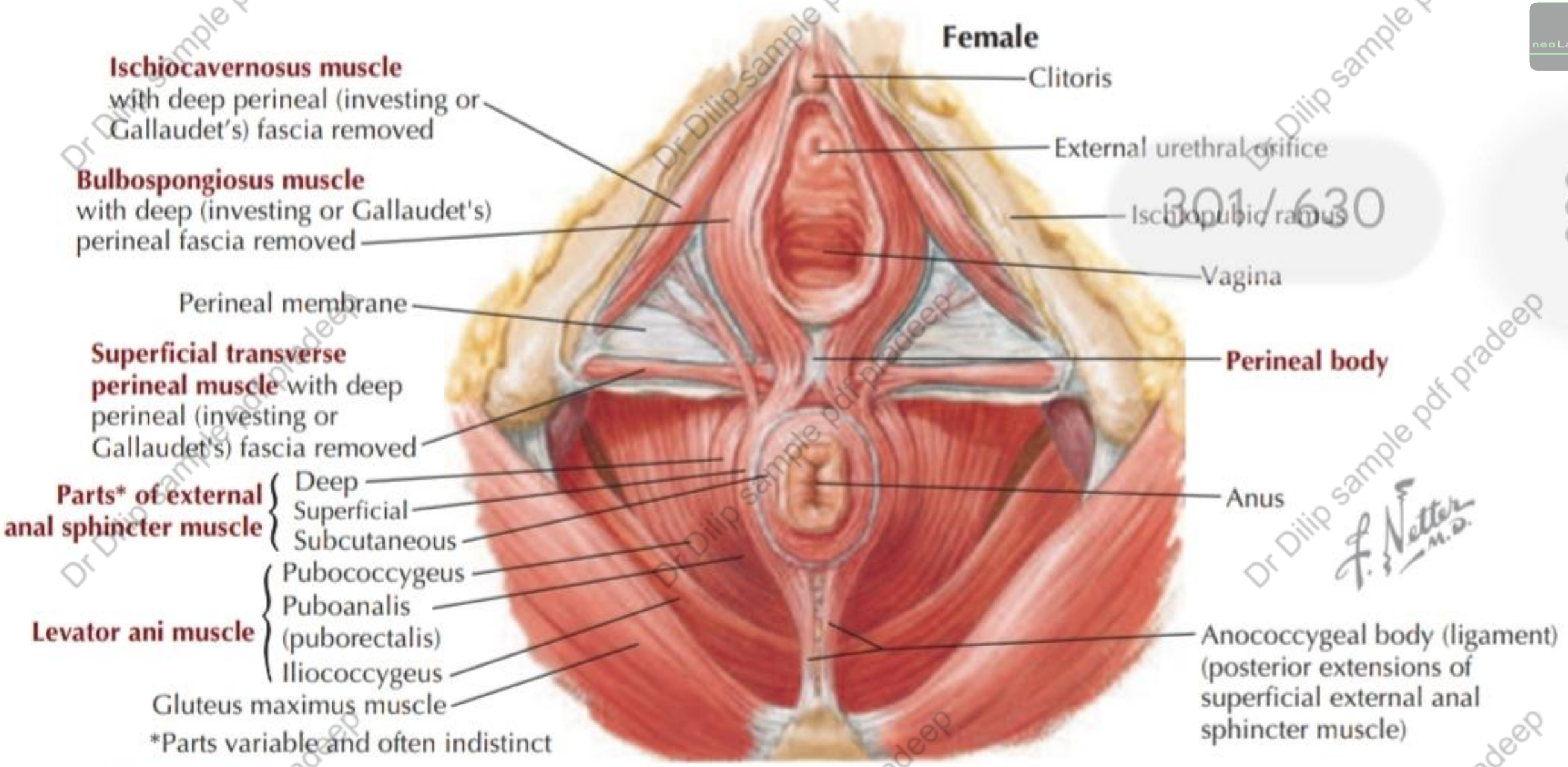
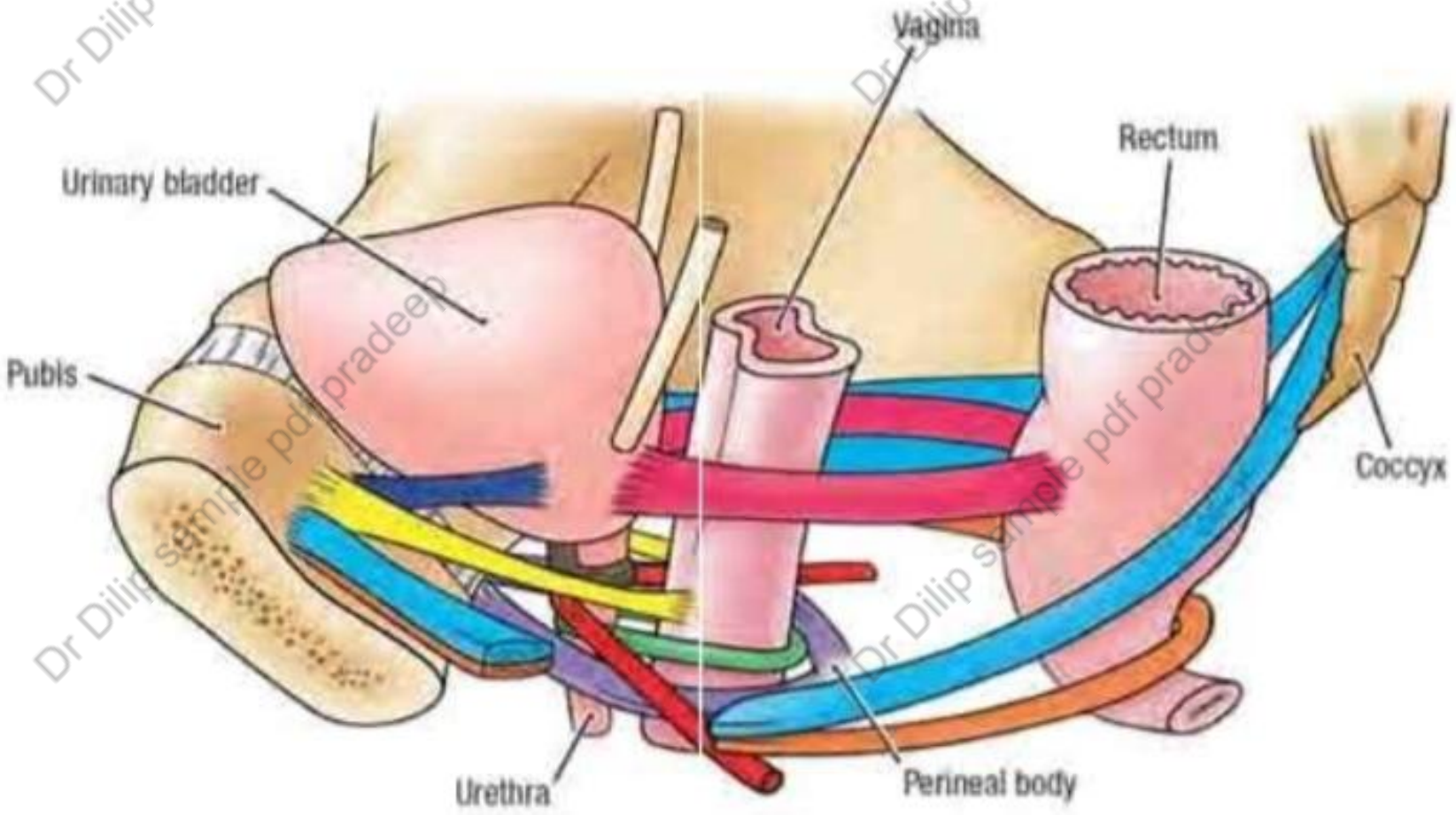


FIGURE 5.18 Muscles of the Female Perineum. (From *Atlas of human anatomy,* ed 7, Plate 377.)



B. Left Lateral View, Female

FEMALE:

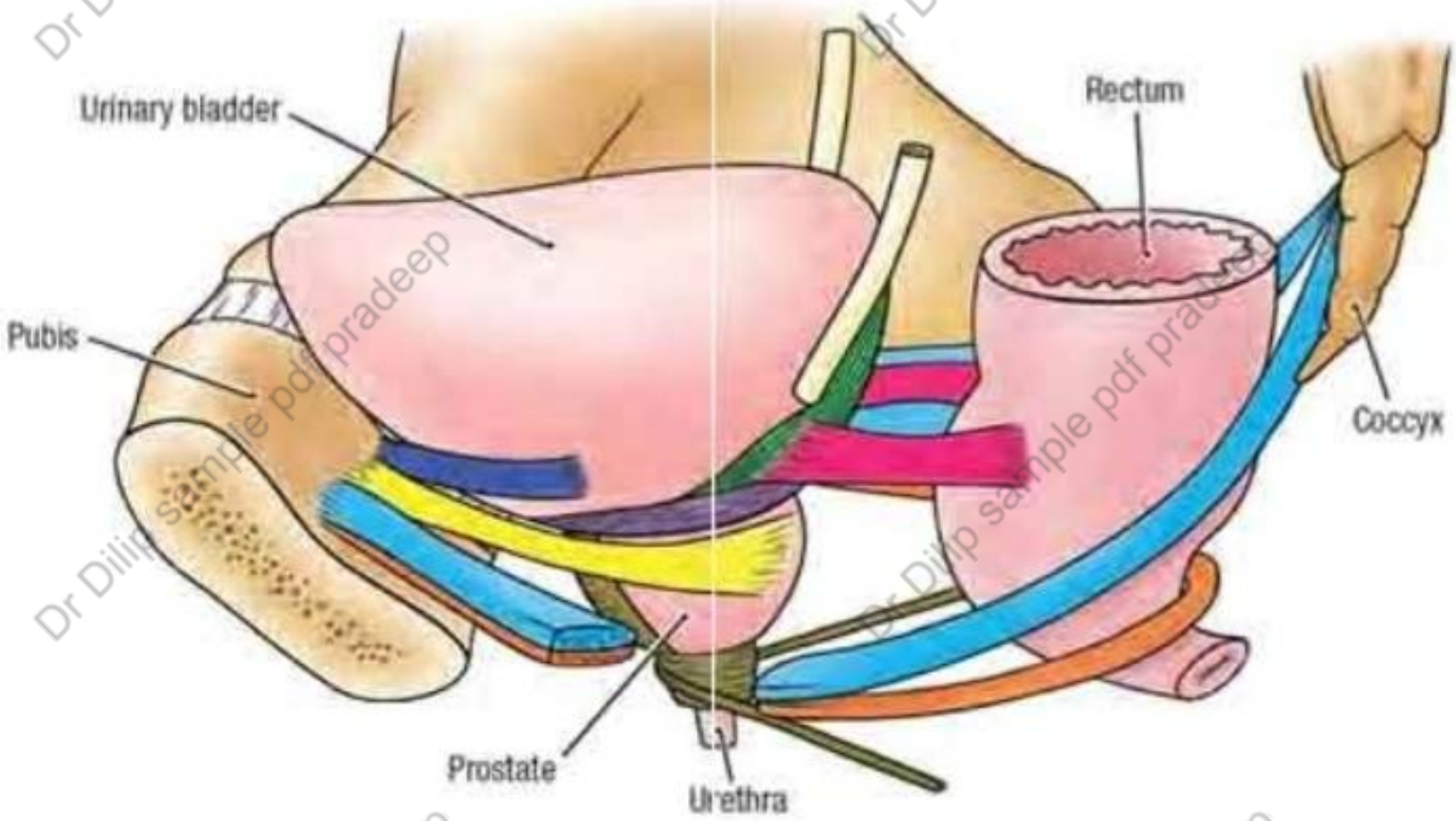
- Pubovesicalis
- Pubococcygeus
- Puborectalis
- Rectovesicalis

Muscles compressing urethra:

- Compressor urethrae
- External urethral sphincter

Muscles compressing vagina:

- Pubovaginalis
- Urethrovaginal sphincter (part of external urethral sphincter)
- Bulbospongiosus



A. Left Lateral View, Male

MALE:

- Puboprostaticus
- Pubococcygeus
- Puborectalis
- Muscle of uvula
- Rectovesicalis

Muscles compressing urethra:

- Internal urethral sphincter
- Pubovesicalis
- External urethral sphincter

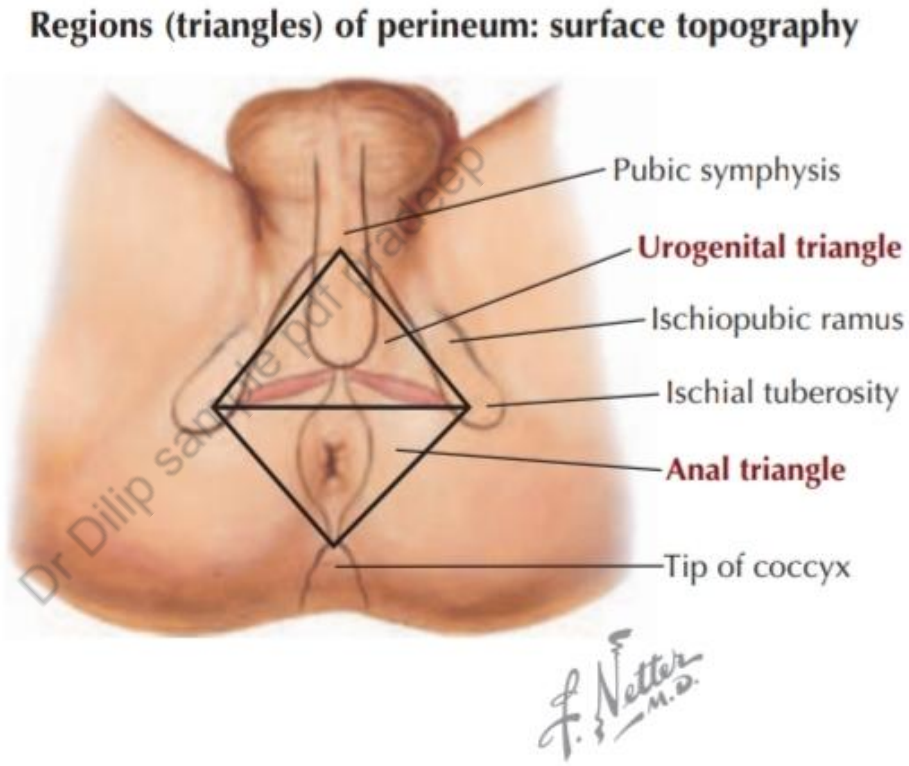


FIGURE 5.17 Subdivisions of the Perineum. (From *Atlas of human anatomy*, ed 7, Plate 362.)

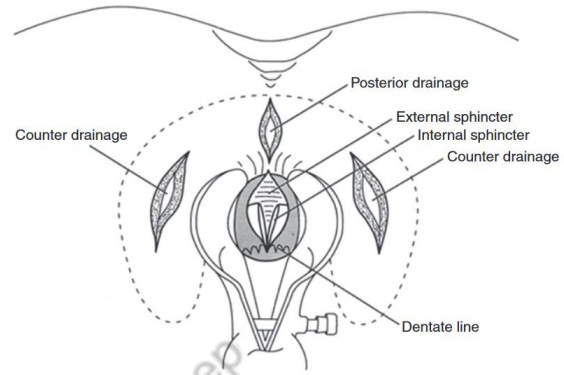


Fig. 14.6 Drainage of a horseshoe abscess

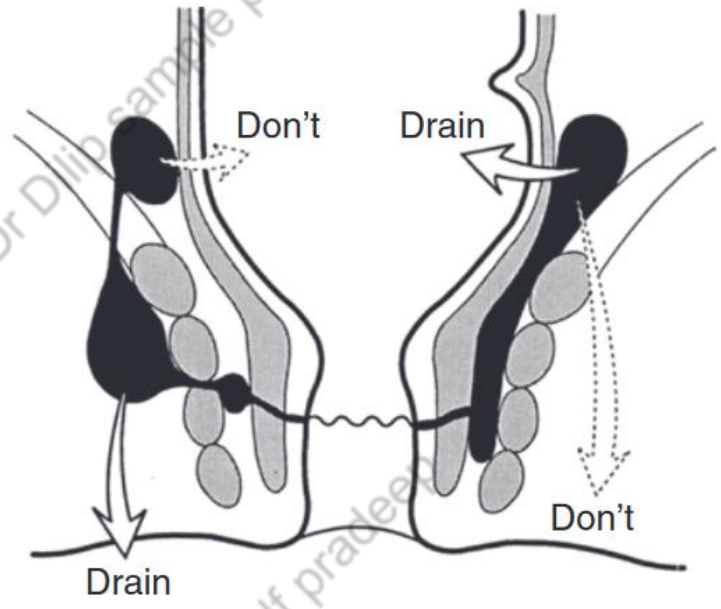


Fig. 14.5 Drainage of a supralevator abscess

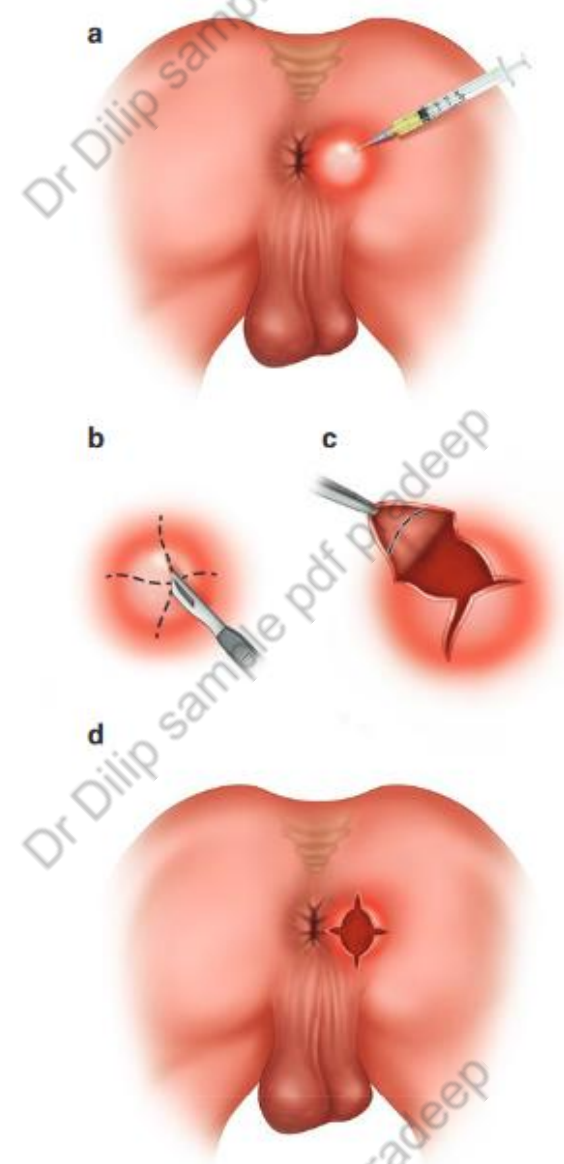


Fig. 14.4 Drainage of abscess: (**a**) injection of local anesthesia, (**b**) cruciate incision, (**c**) excision of skin, (**d**) drainage cavity

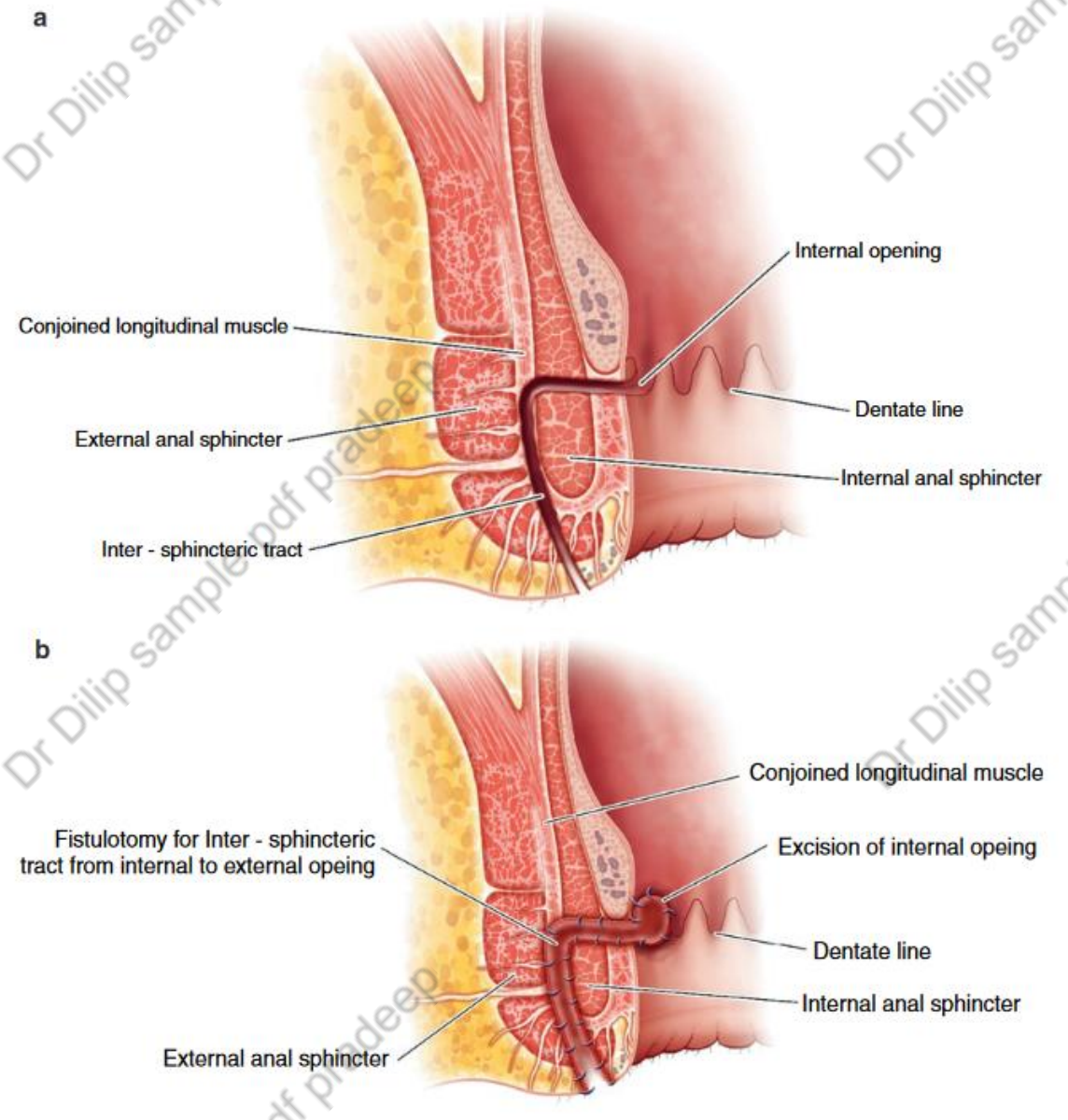


Fig. 13.1 (a) Simple intersphincteric fistula. (b) Simple intersphincteric fistula showing fistulotomy

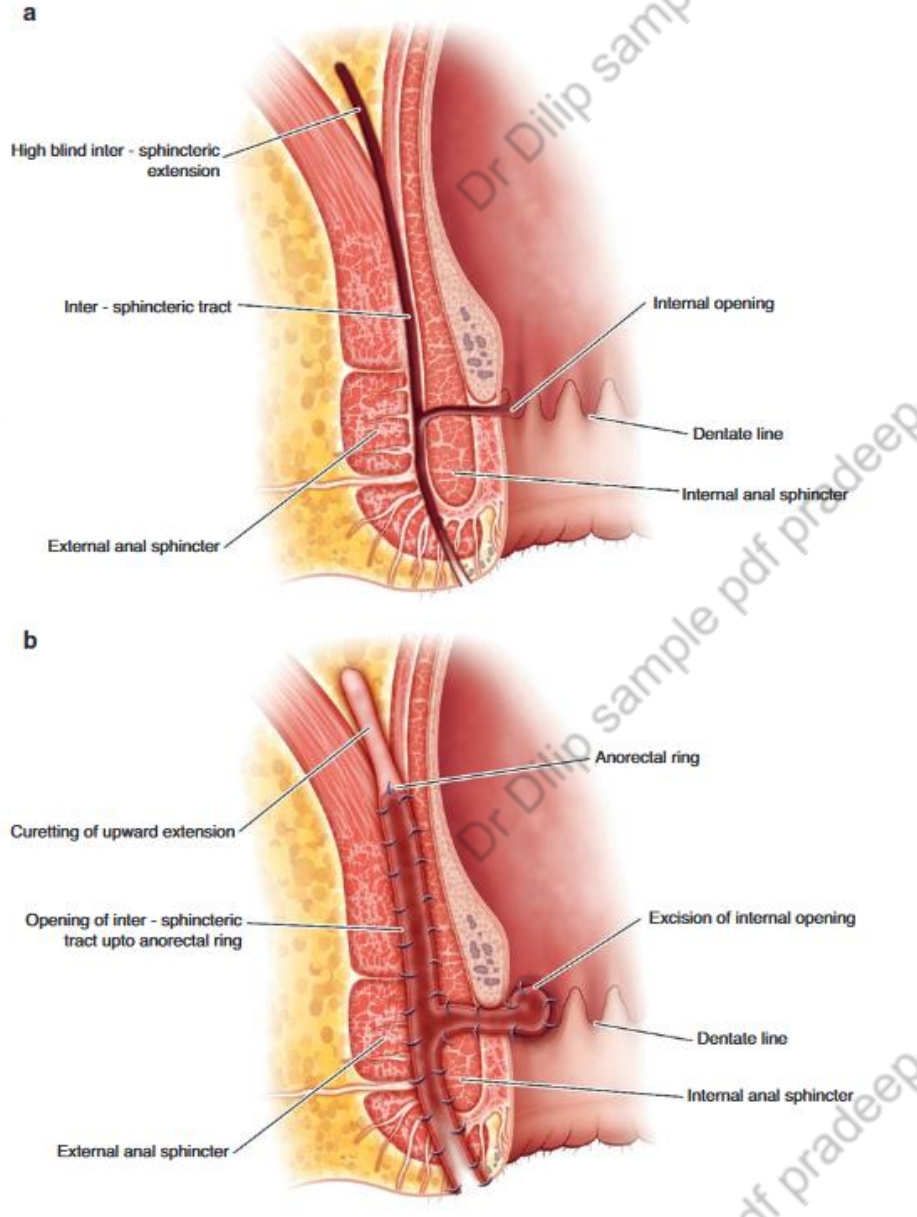


Fig. 13.2 (a) Intersphincteric fistula with high blind tract. (b) Fistulotomy including the opening of intersphincteric space

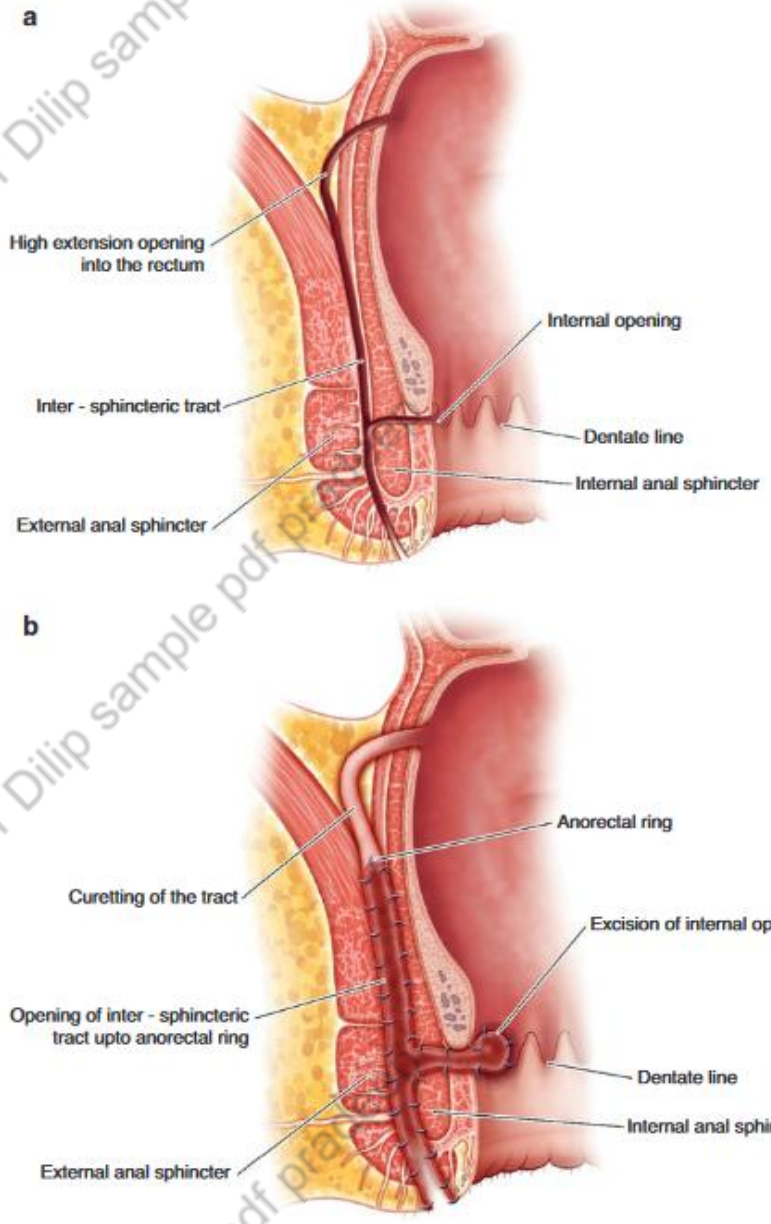


Fig. 13.3 (**a**) Intersphincteric fistula with upward extension opening in the lower rectum. (**b**) Fistulotomy with excision of internal opening and opening of intersphincteric space up to anorectal ring

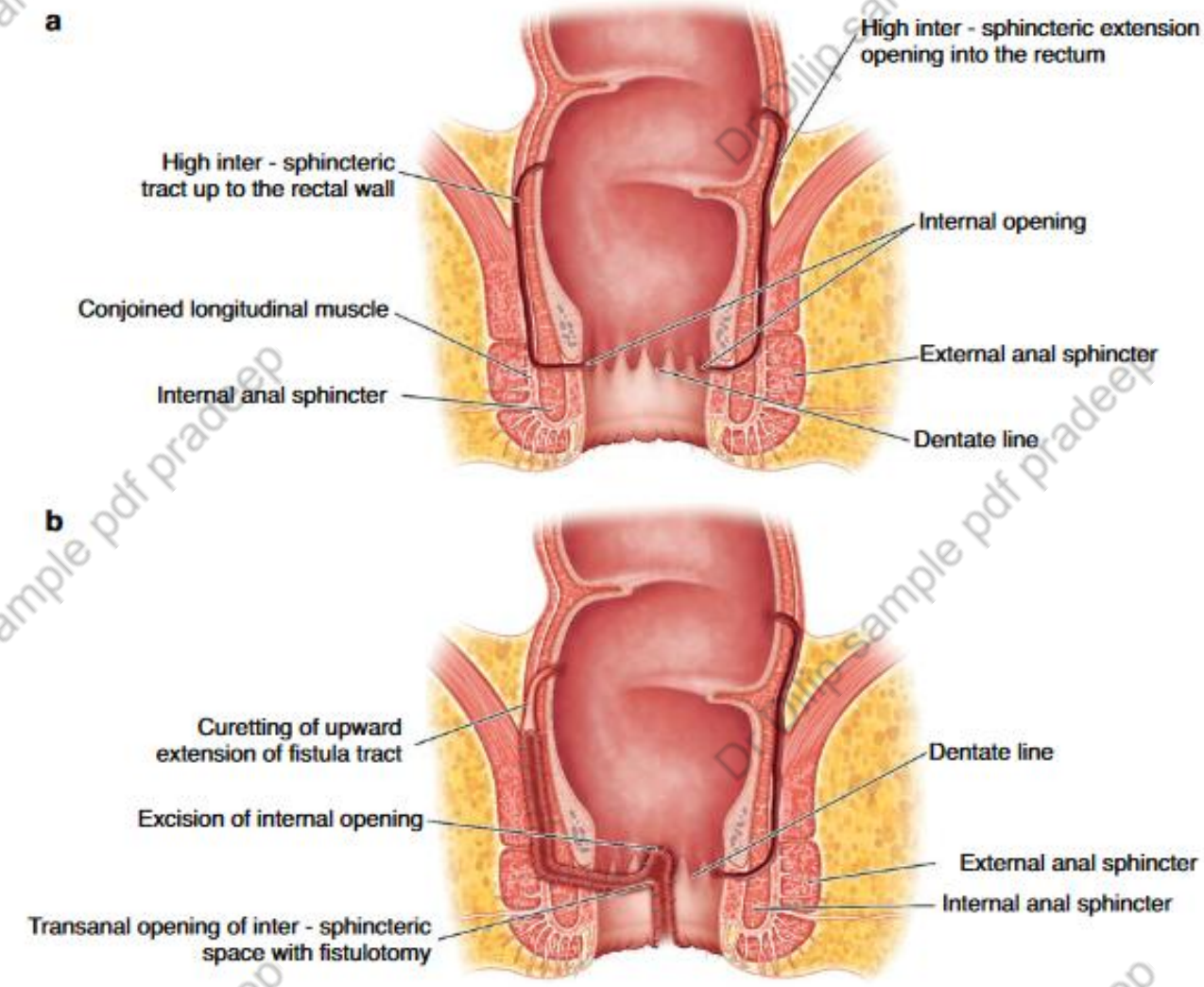


Fig. 13.4 (**a**) High intersphincteric fistula tract without external opening. (**b**) Transanal opening of intersphincteric space extending up to anorectal ring with fistulotomy at 6 o'clock

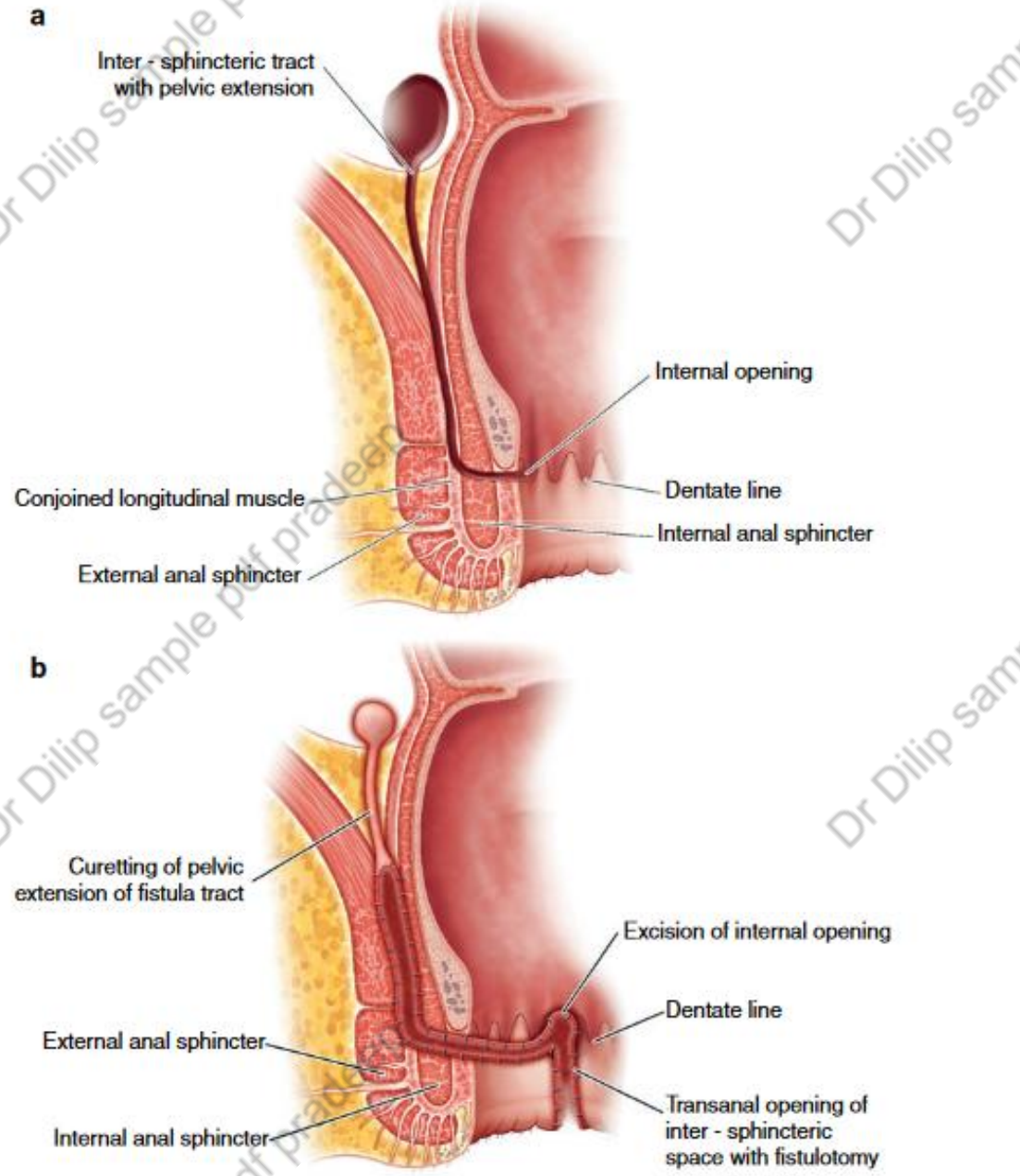
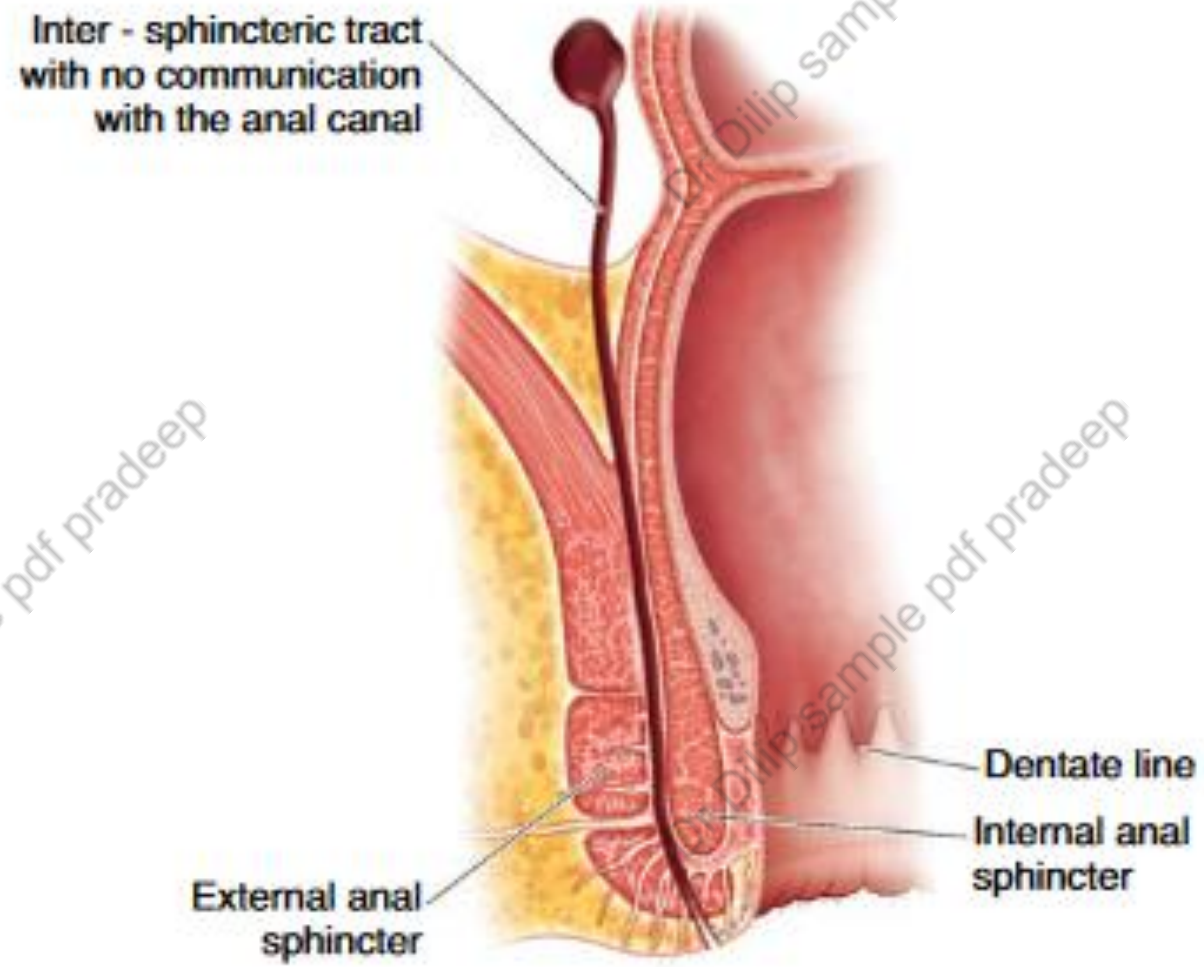


Fig. 13.5 (**a**) High intersphincteric fistula with a pelvic extension (A5). (**b**) Transanal opening of intersphincteric space with fistulotomy



divided in an uncomplicated low trans-sphincteric fistula. The disturbance to the anal continence is minimal (Fig. 13.7a, b).

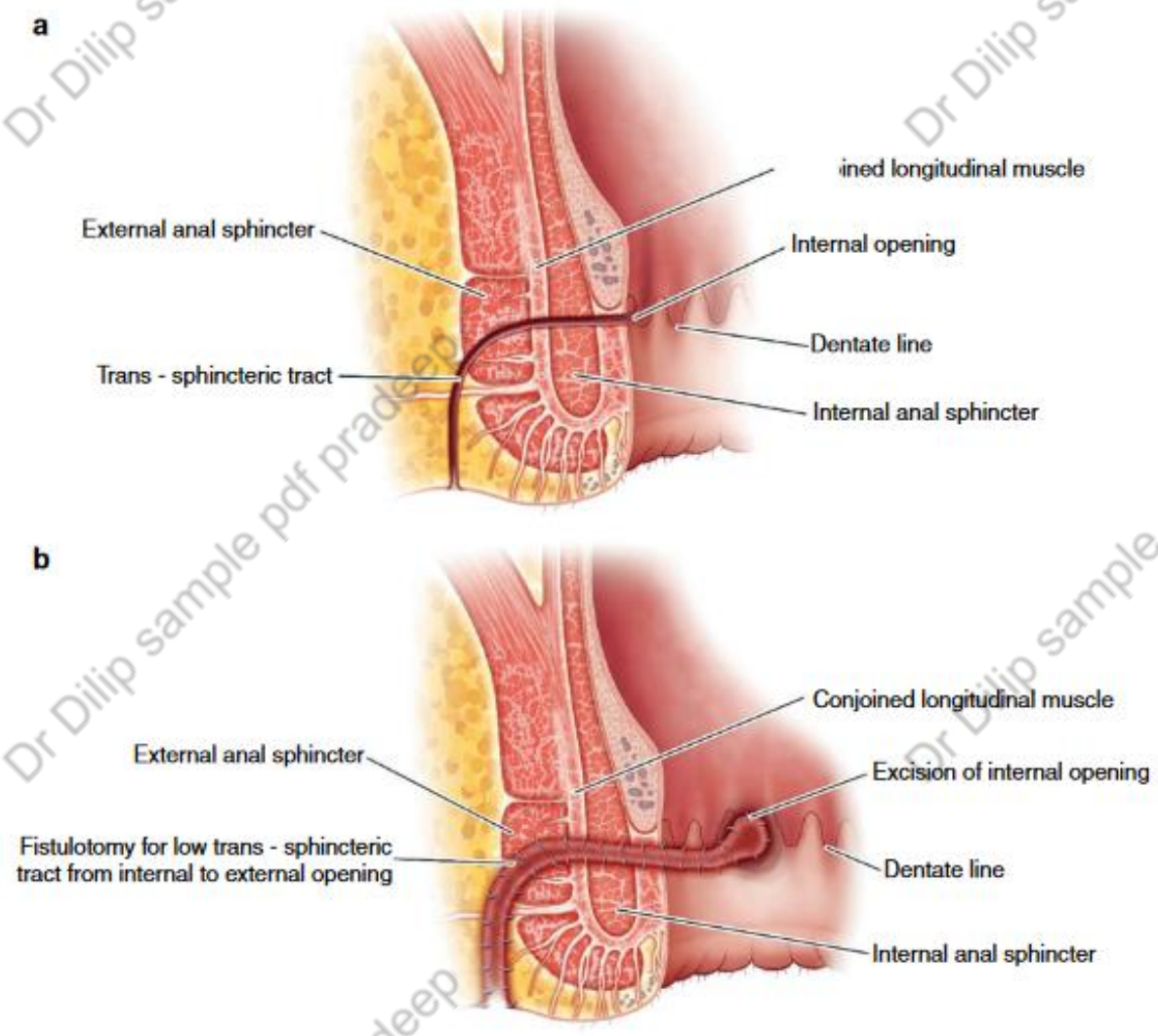


Fig. 13.7 (**a**) Uncomplicated trans-sphincteric fistula. (**b**) Fistulotomy for low trans-sphincteric tract from internal to external opening

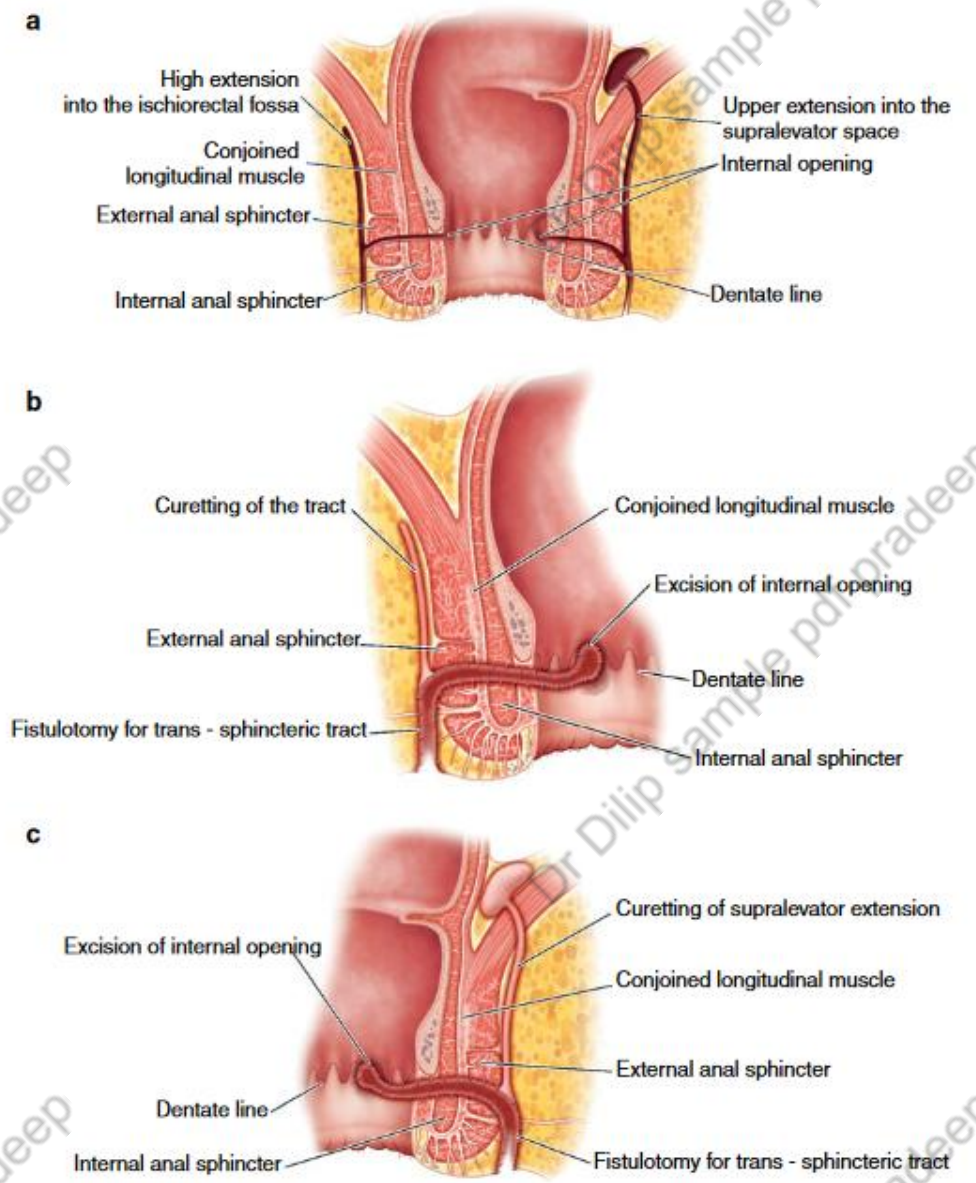


Fig. 13.8 (**a**) Trans-sphincteric fistula with high blind tract and suprasphincteric extension. (**b**) Fistulotomy of trans-sphincteric tract followed by excision of internal opening. (**c**) Fistulotomy of trans-sphincteric tract followed by curetting of supralevator extension

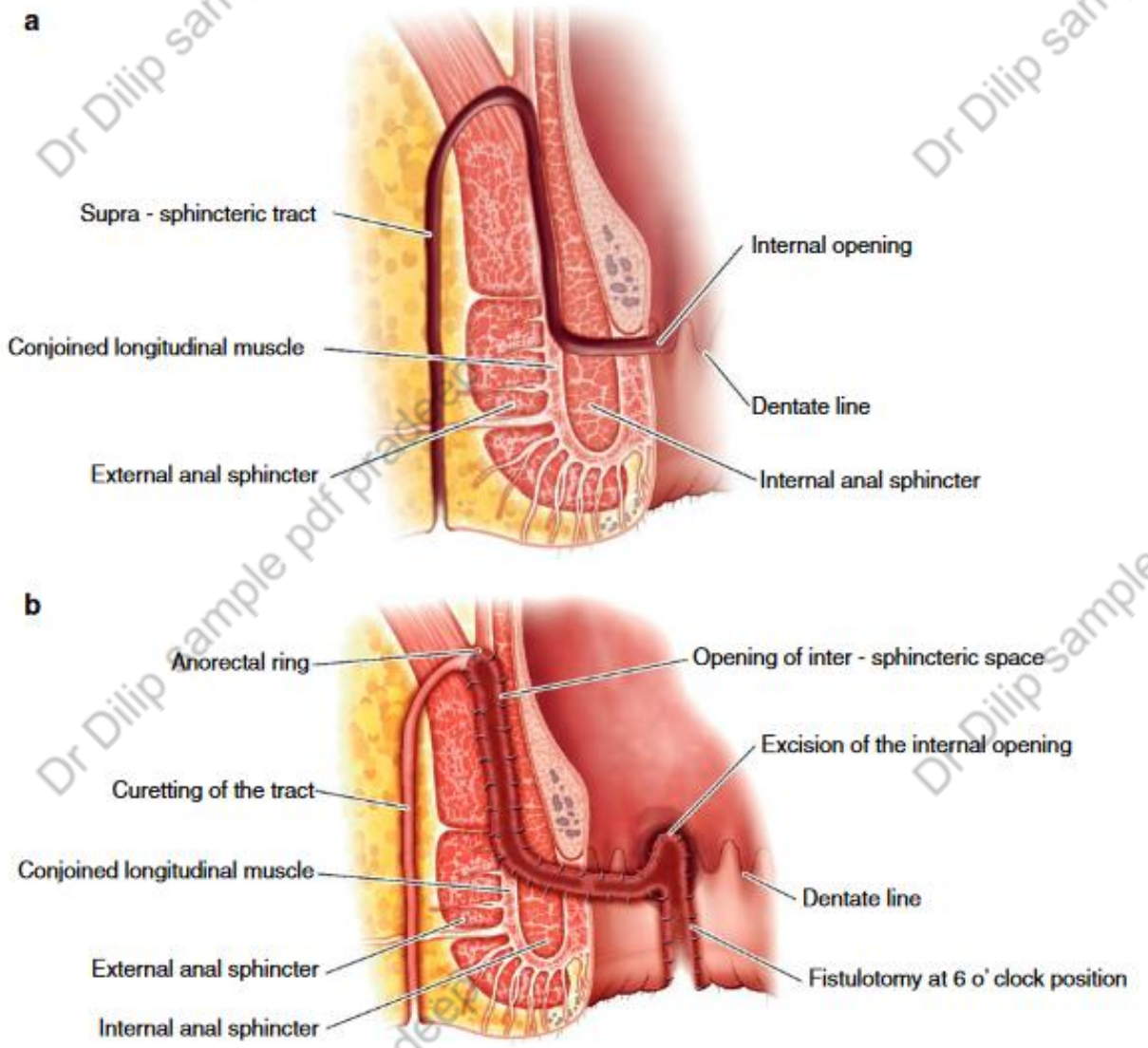


Fig. 13.9 (**a**) Suprasphincteric fistula. (**b**) Fistulotomy at 6 o'clock position with opening of intersphincteric part of the tract

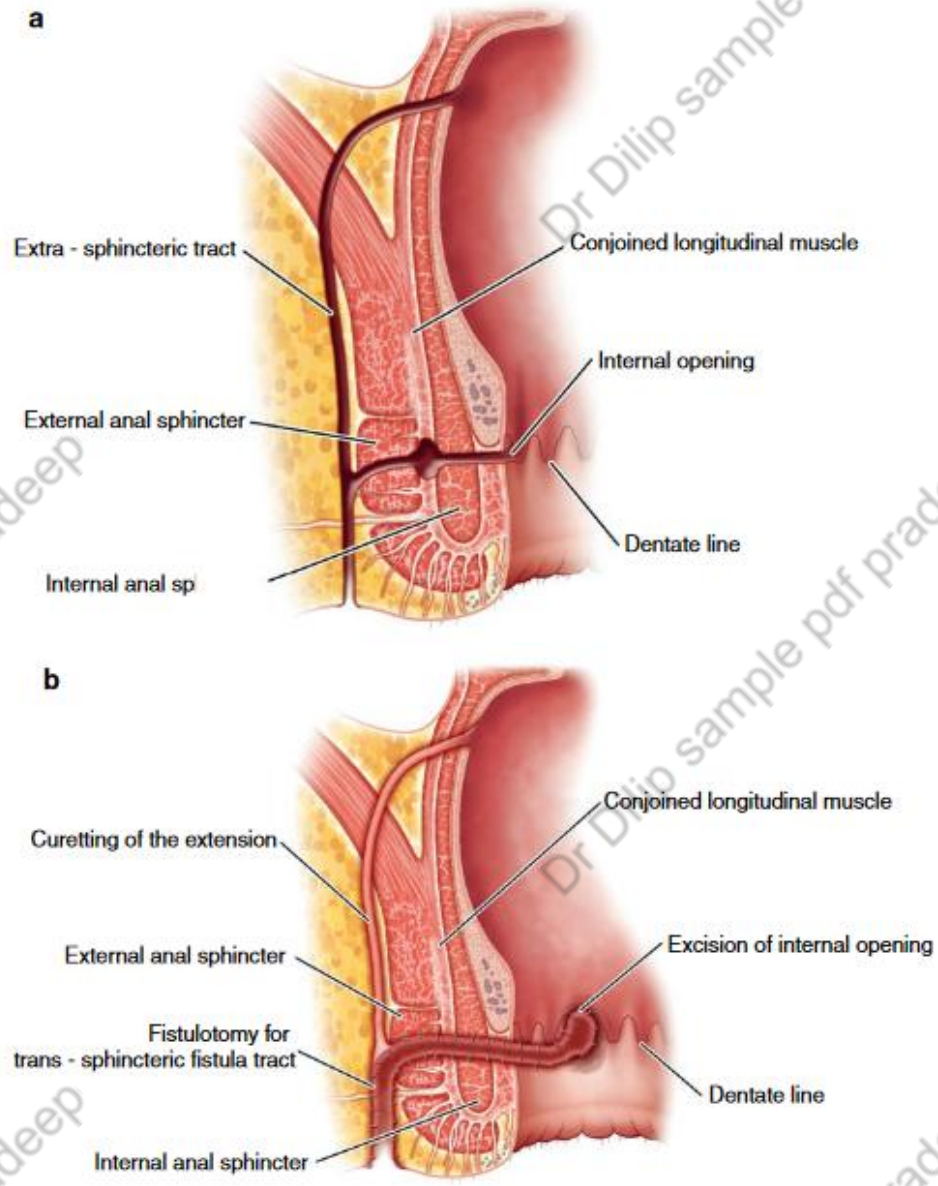
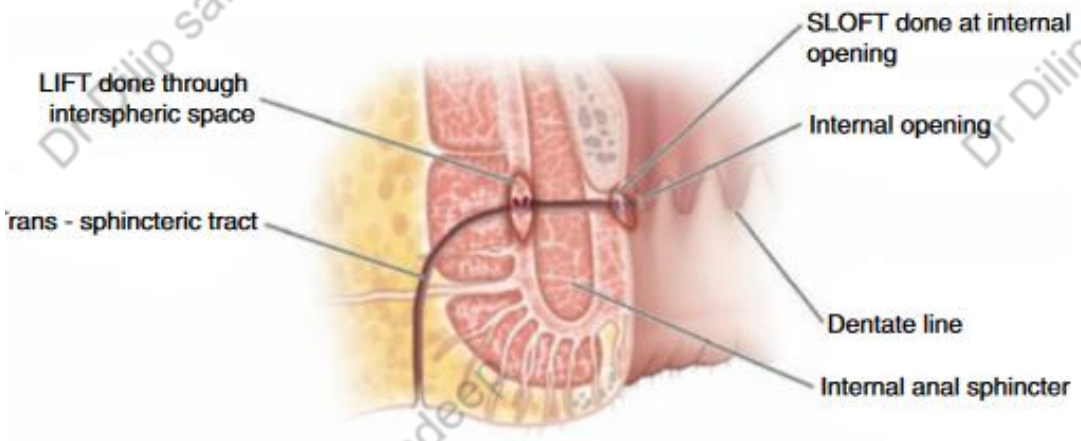


Fig. 13.10 (**a**) Extrasphincteric fistula tract extending from trans-sphincteric tract of cryptoglandular origin. (**b**) Excision of internal opening with fistulotomy done for trans-sphincteric tract. The extrasphincteric extension curetted. Primary sphincter repair can be done incase more than 30% of external sphincter is divided



mobilization or the tendency of a flap to retract or dehiscence [45]. Minimal incontinence has been reported in some patients. Fibrin glue has a success rate of 16% [45].

T:

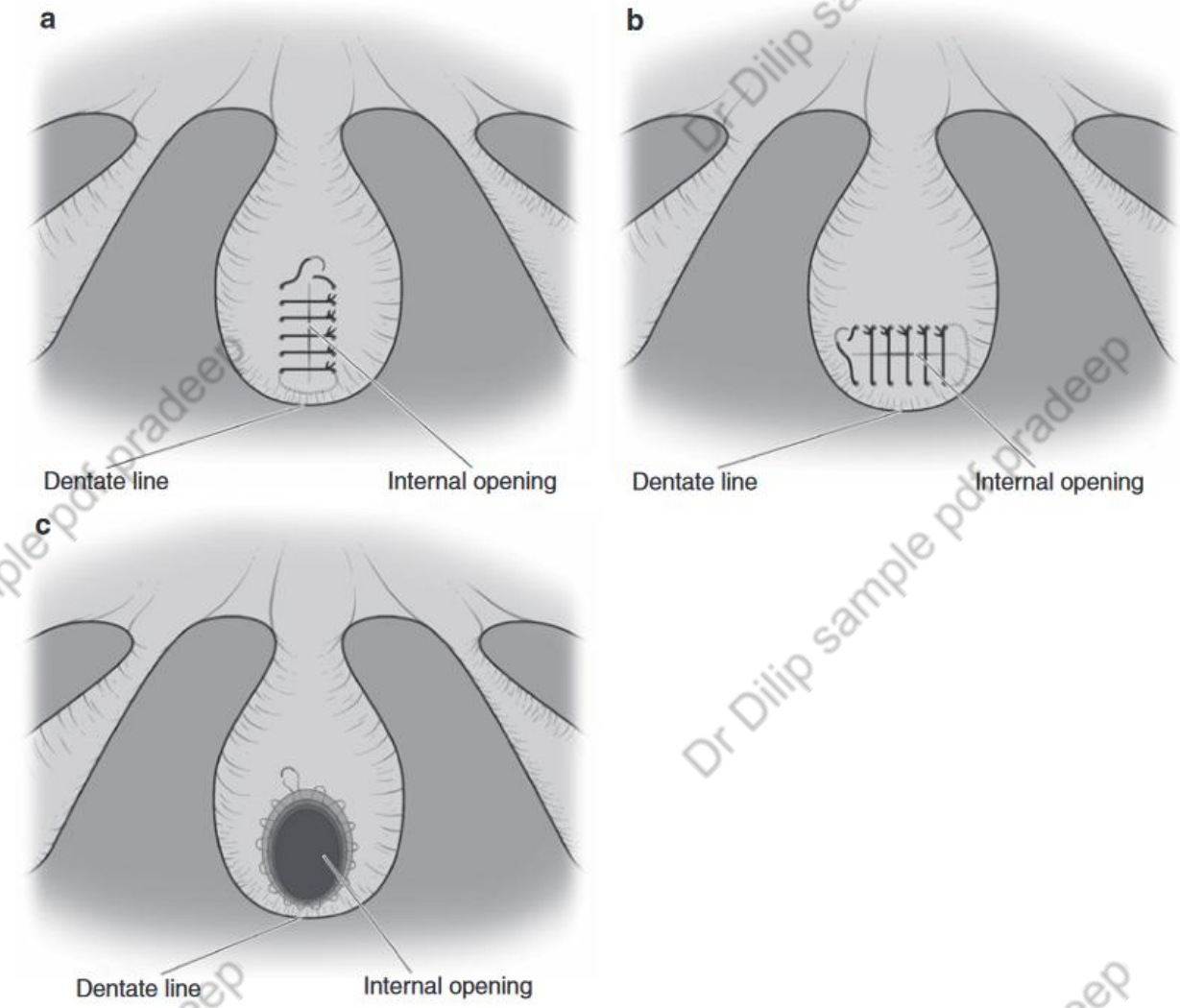


Fig. 15.2 (a) Closure of internal opening perpendicular to dentate line. (b) Closure of internal opening parallel to dentate line. (c) Closure of internal opening by purse-string suture

Fig. 14.7 Horseshoe fistula managed with drainage and seton

Fig. 14.7 Horseshoe fistula managed with drainage and

Cutting seton for the treatment of cryptoglandular fistula-in-ano: a systematic review and meta-analysis

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Tech Coloproctol. 2023 Dec 13;28(1):12.
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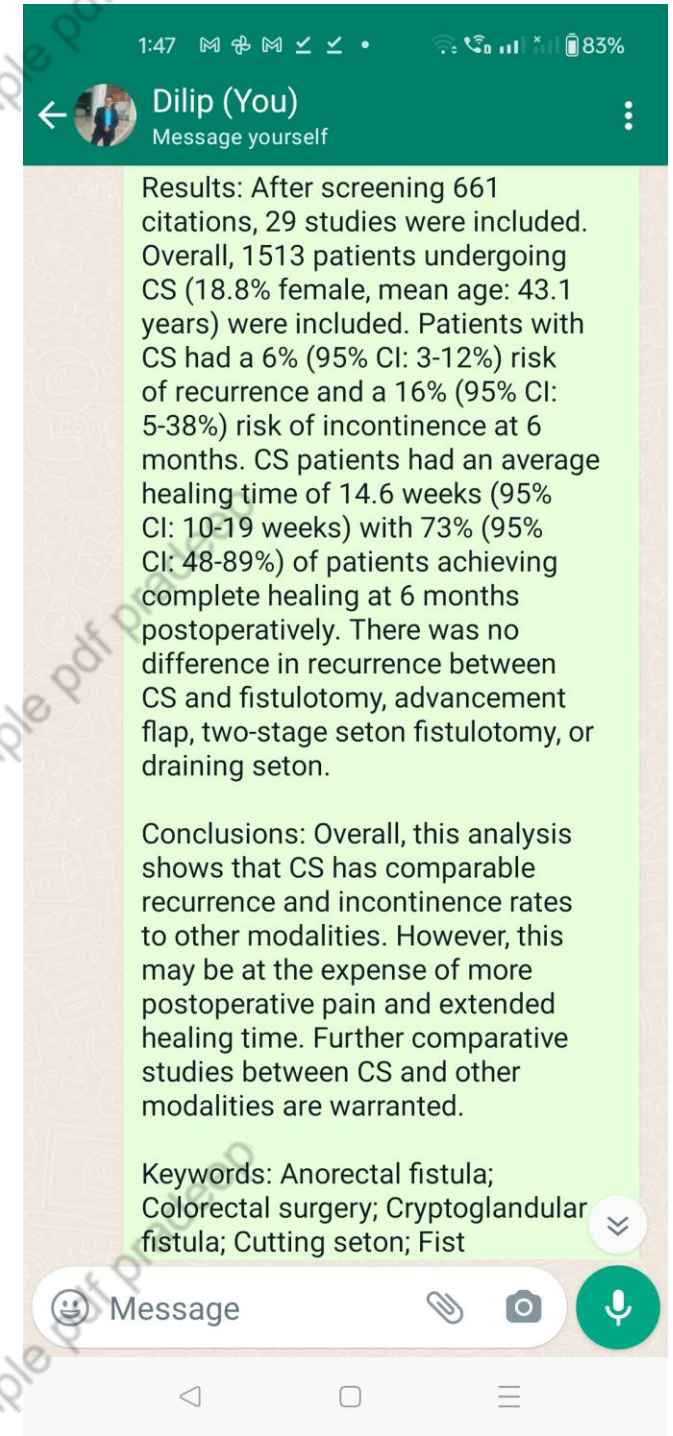

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Effects of loose combined cutting seton surgery on wound healing and pain in patients with high anal fistula: A meta-analysis

Jie Xi et al. Int Wound J. 2024 Mar

Int Wound J 2024 Mar;21(3):e14675. doi: 10.1111/iwj.14675.
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PMID: 38484699
PMCID: PMC10940002
DOI: 10.1111/iwj.14675
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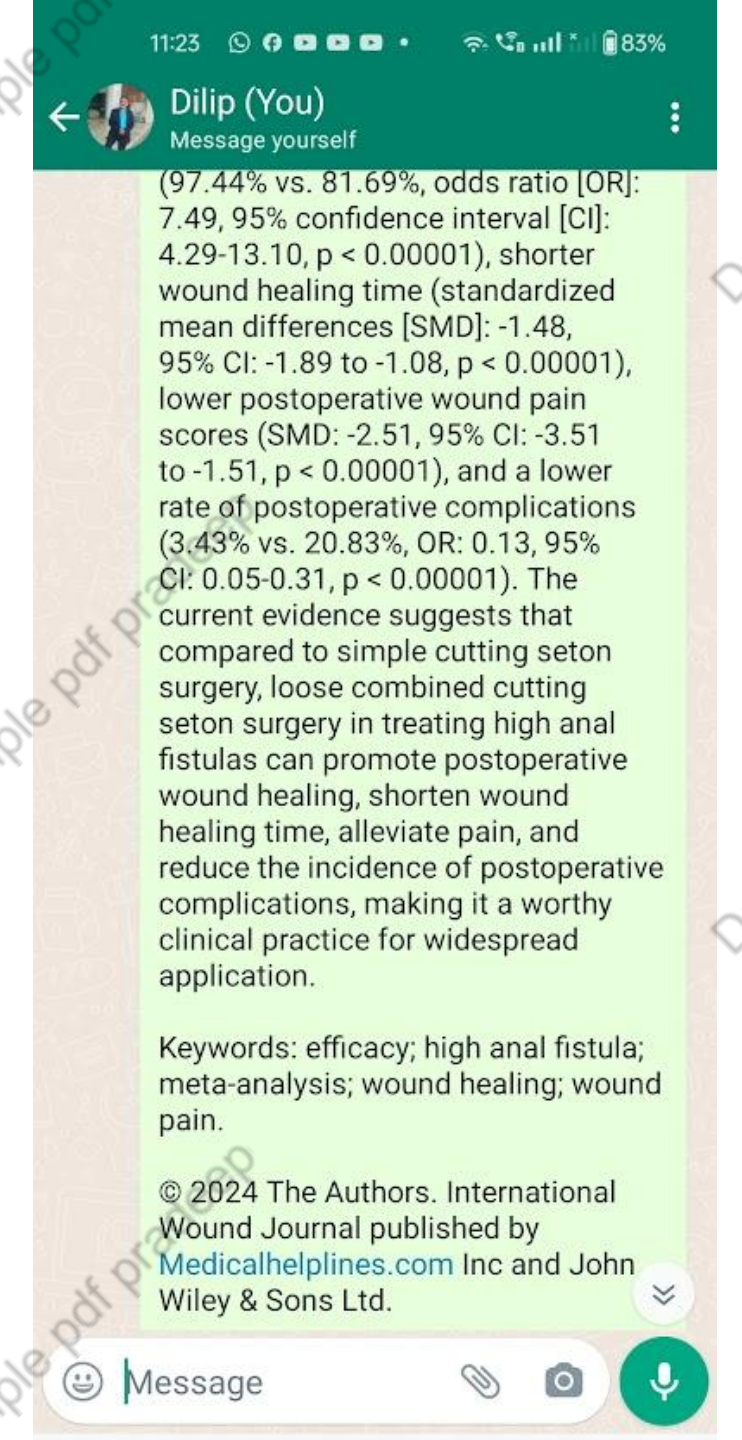
Abstract
A meta-analysis was conducted to evaluate the effects of loose combined cutting seton surgery on wound healing and pain in patients with high anal fistula, aiming to provide evidence-based medical evidence for surgical method

Message



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(97.44% vs. 81.69%, odds ratio [OR]: 7.49, 95% confidence interval [CI]: 4.29-13.10, p < 0.00001), shorter wound healing time (standardized mean differences [SMD]: -1.48, 95% CI: -1.89 to -1.08, p < 0.00001), lower postoperative wound pain scores (SMD: -2.51, 95% CI: -3.51 to -1.51, p < 0.00001), and a lower rate of postoperative complications (3.43% vs. 20.83%, OR: 0.13, 95% CI: 0.05-0.31, p < 0.00001). The current evidence suggests that compared to simple cutting seton surgery, loose combined cutting seton surgery in treating high anal fistulas can promote postoperative wound healing, shorten wound healing time, alleviate pain, and reduce the incidence of postoperative complications, making it a worthy clinical practice for widespread application.

Keywords: efficacy; high anal fistula; meta-analysis; wound healing; wound pain.

Message

Fig. 14.9 Necrotizing soft tissue infection in a patient with a supralevator fistula and abscess inadequately

– Can be left in place to prevent recurrent abscess formation in patients with Crohn's disease or in patients who are not deemed candidates for additional surgery.

Advancement Flap

- Endorectal advancement flap (ERAF) has been advocated as an effective treatment for high transsphincteric or suprasphincteric fistulas.

  Essential operative elements include:
  – Debridement or excision of the fistula tract
  – Mobilization of a vascularized, tension-free mucosal flap
  – Coverage of the internal opening with absorbable suture

Technique

1. With the patient in prone jackknife position or in lithotomy position, the internal opening of the fistula is exposed – this can be accomplished by everting the anal canal with the Lone Star® retractor system (Fig. 14.18a).
2. The internal opening is identified and the crypt-bearing tissue excised.
3. A small rim of the anoderm, below the internal opening, is excised to create a neo-dentate line.
4. The defect in the internal anal sphincter is closed with absorbable sutures (2-0 Vicryl, Ethicon Inc., Somerville, NJ) (Fig. 14.18b).
5. A curvilinear incision is made at the level of the internal opening extending laterally to create a wide tissue flap.
6. Dissection is performed in the submucosal plane consisting of mucosa, submucosa, and few superficial fibers of the internal anal sphincter and then mobilized over a distance of 4–6 cm proximally.

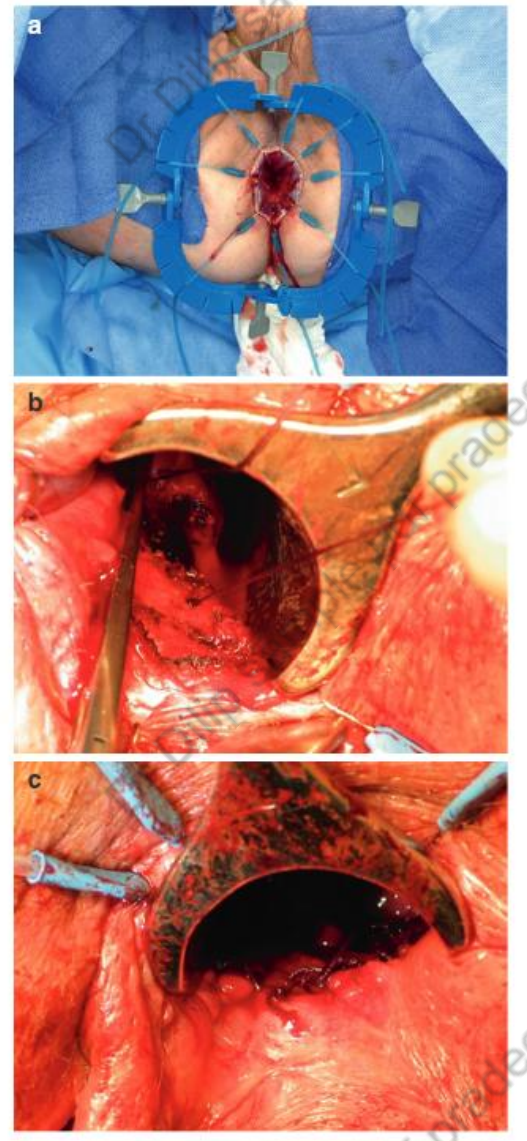

Fig. 14.18 (a) Lone Star to evert the anal canal. (b) Closing the internal opening. (c) Securing the flap

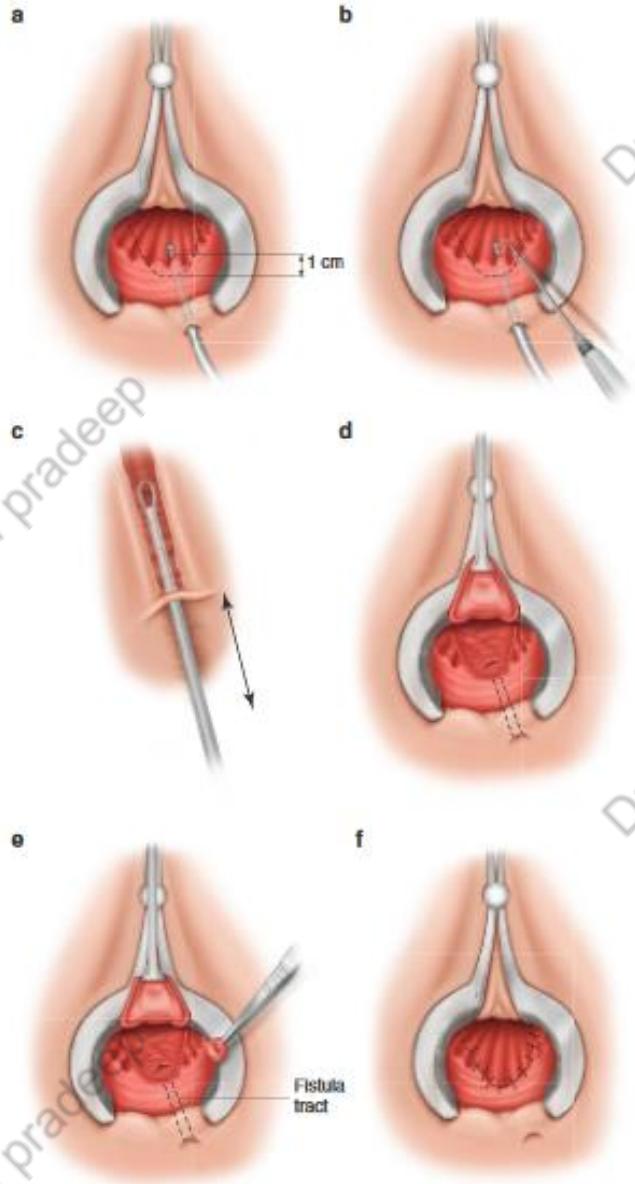

Fig. 15.7 (a–f) Technical steps of endorectal advancement flap

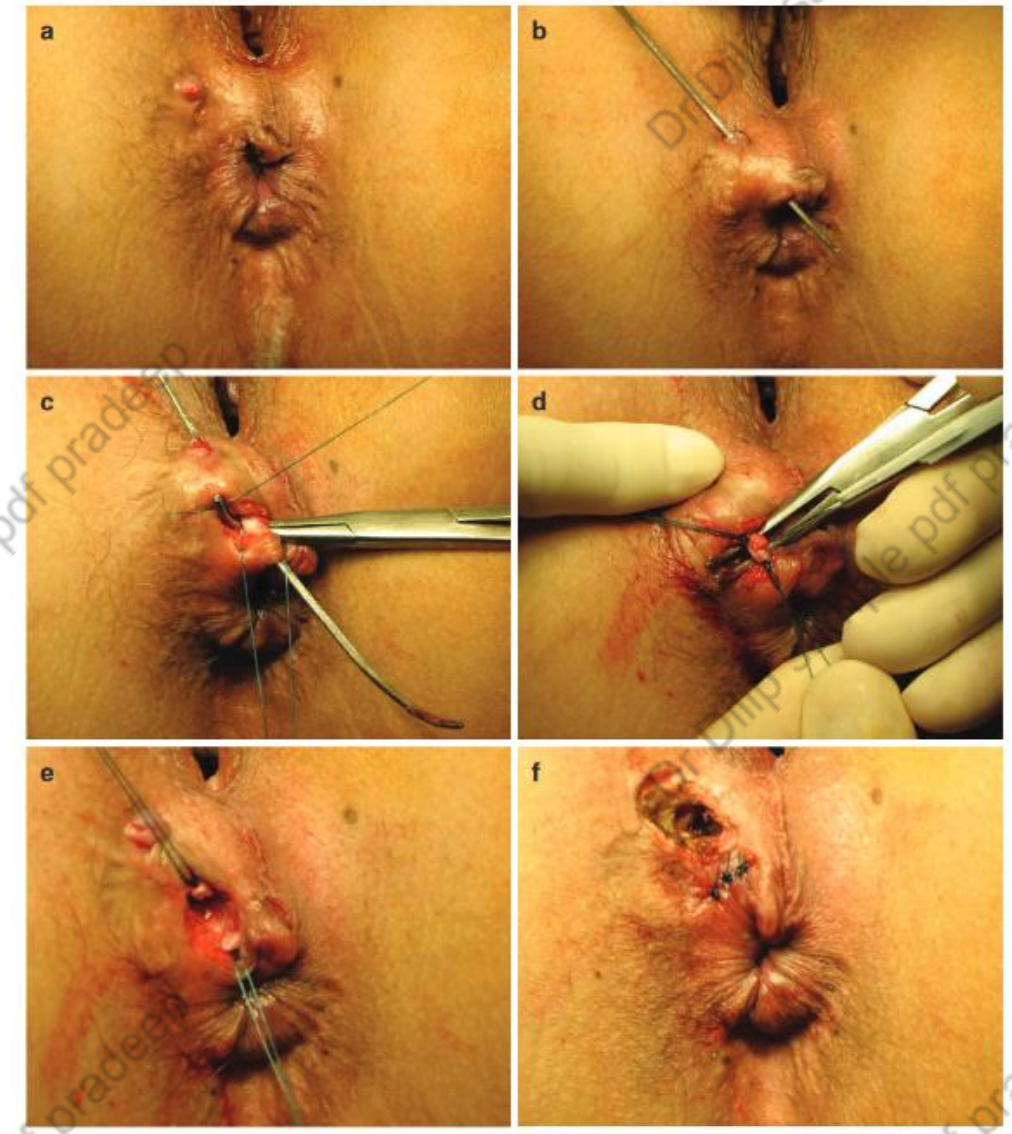

Fig. 15.8 (a–f) Intraoperative demonstration of the LIFT procedure

Fig. 14.7 Horseshoe fistula managed with drainage and seton

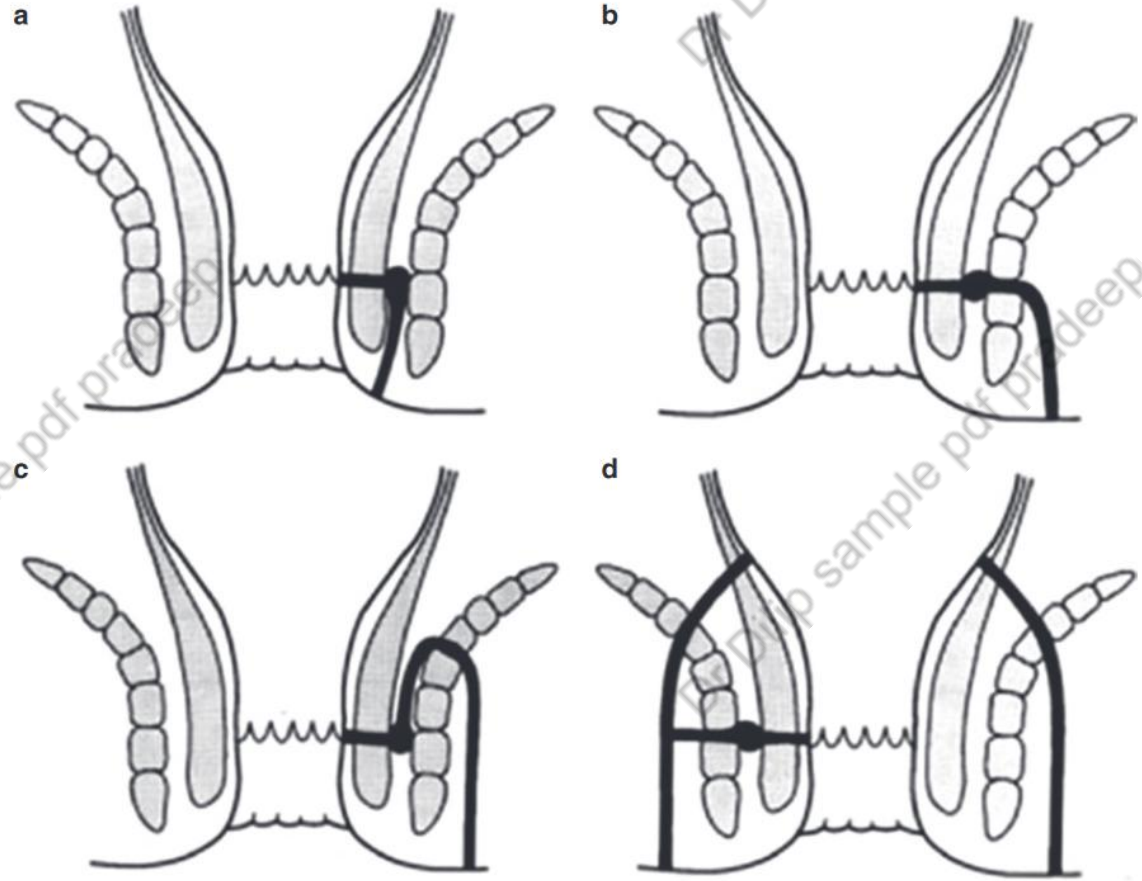

Fig. 14.11 Classification of anal fistula. (**a**) intersphincteric, (**b**) transsphincteric, (**c**) suprasphincteric, (**d**) extrasphincteric

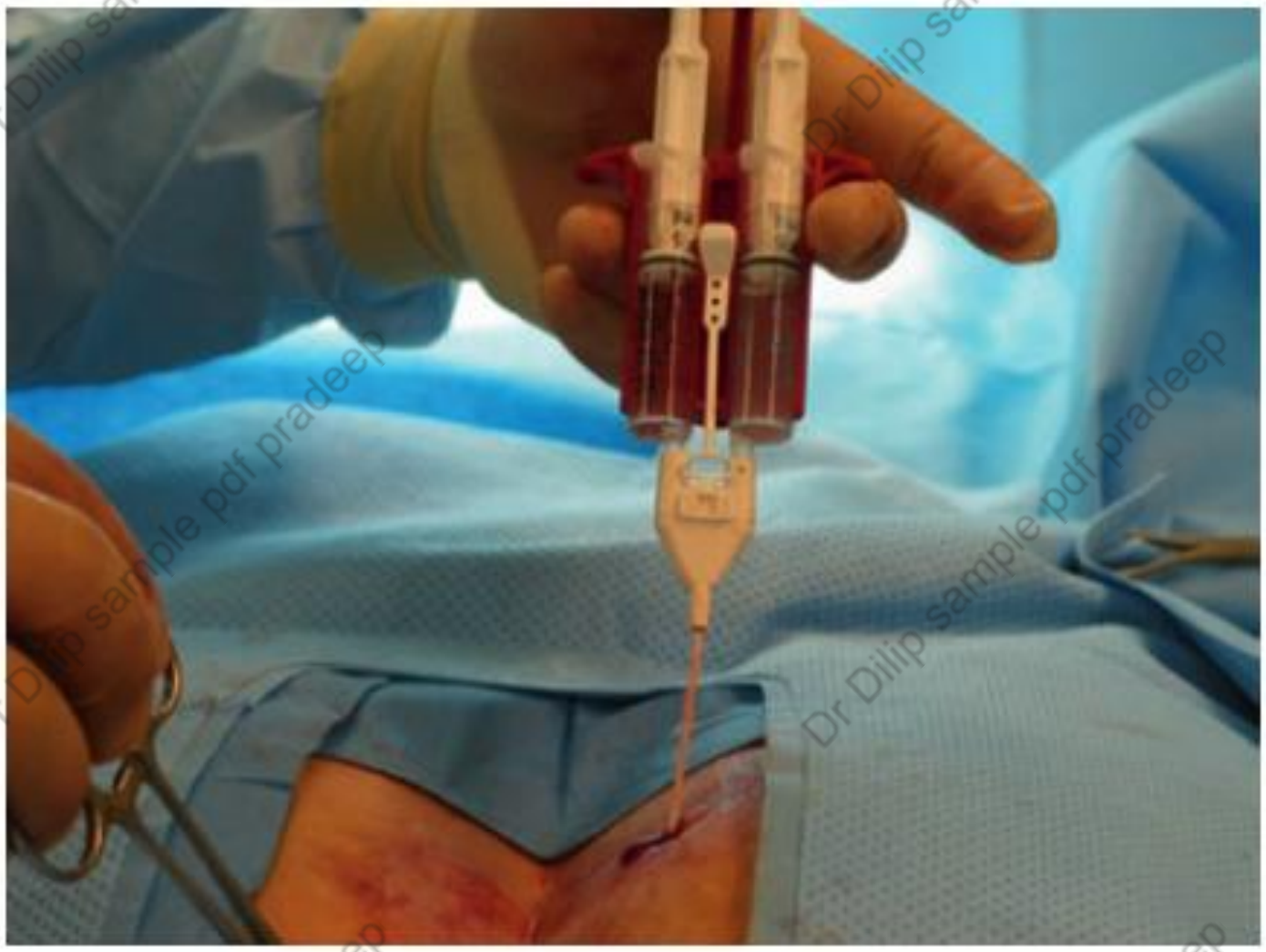

Fig. 14.19 Fibrin glue injection into an anal fistula

Fig. 15.4 Draining setons in a patient with multiple complex anorectal fistulas and prior radiation therapy to the pelvis

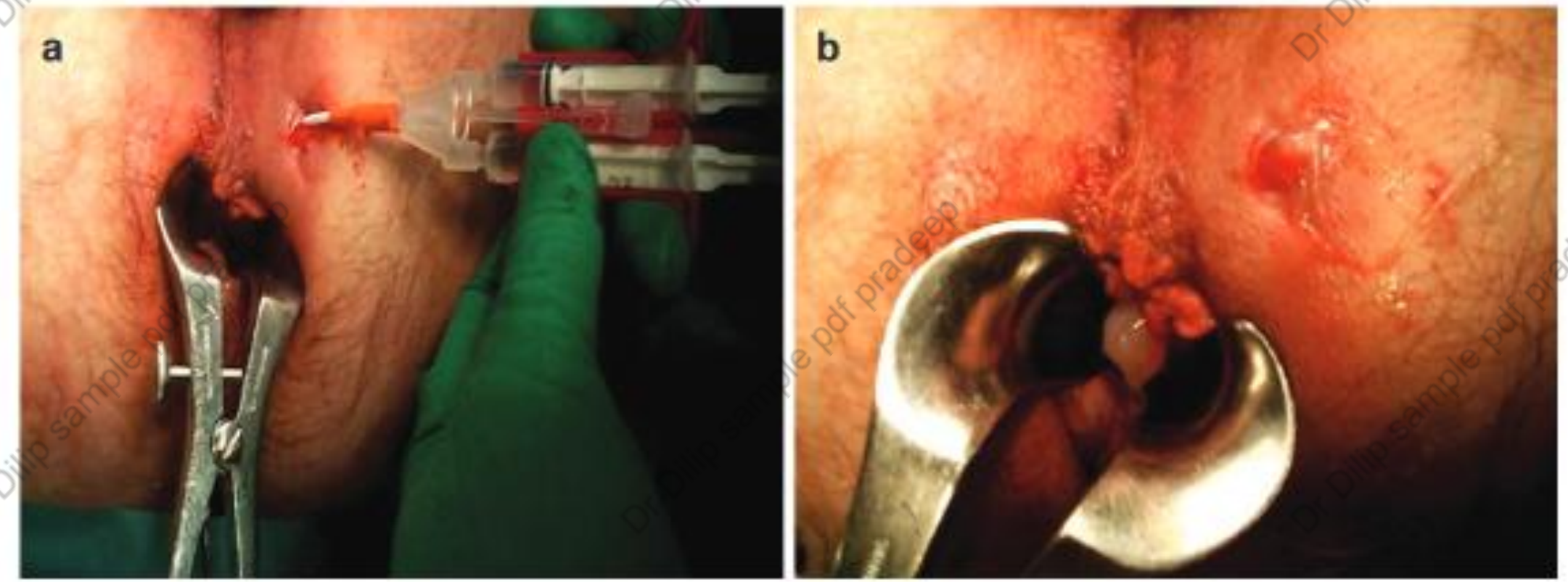

Fig. 15.11 (**a**) Fibrin glue injection of a high transsphincteric fistula through the external fistulous opening. (**b**) Fistula tract sealed with the fibrin glue. Note the fibrin glue extruding from the internal opening inside the anal canal

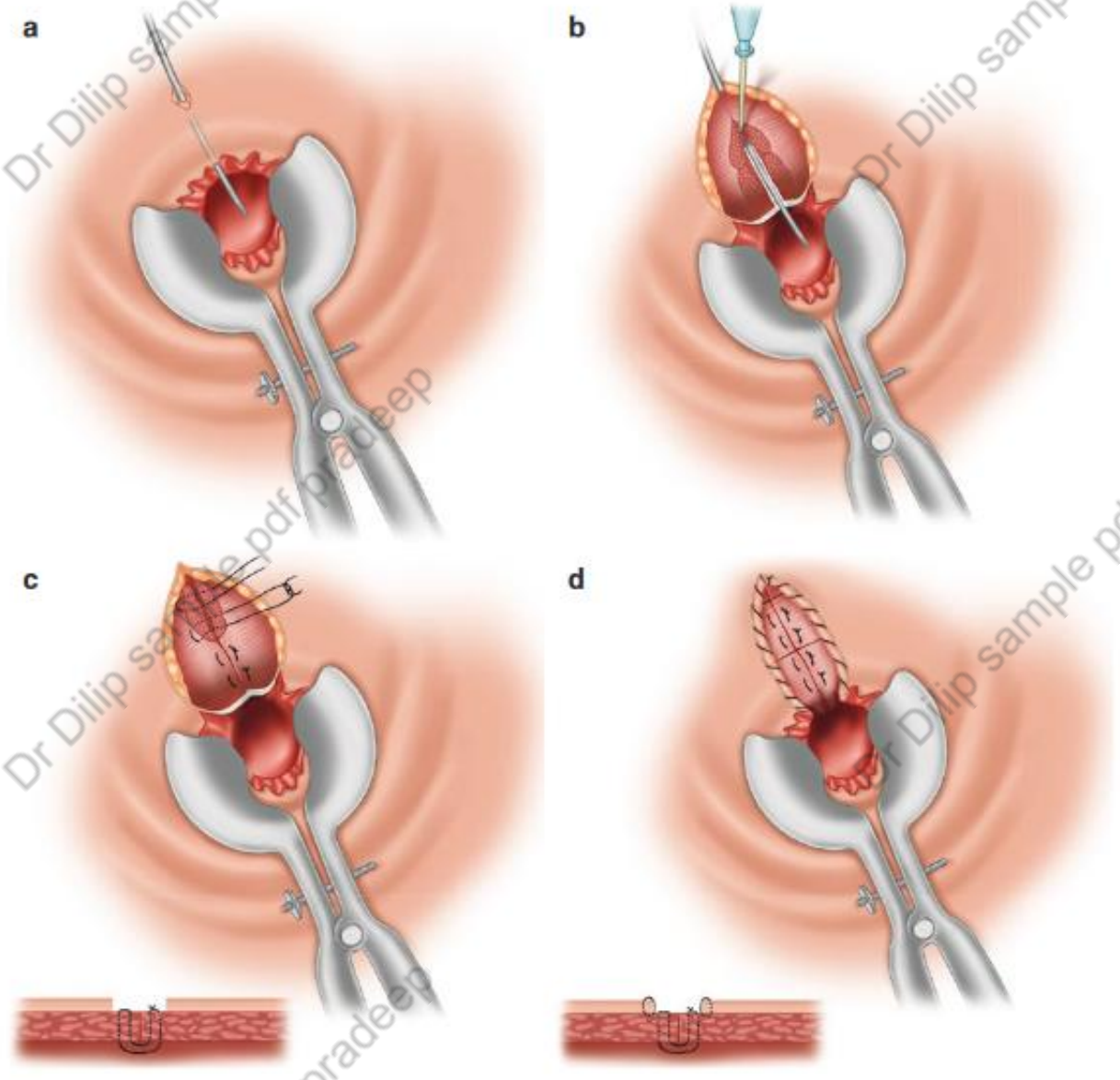

Fig. 15.9 (**a–d**) Technical steps of fistulotomy with sphincter reconstruction

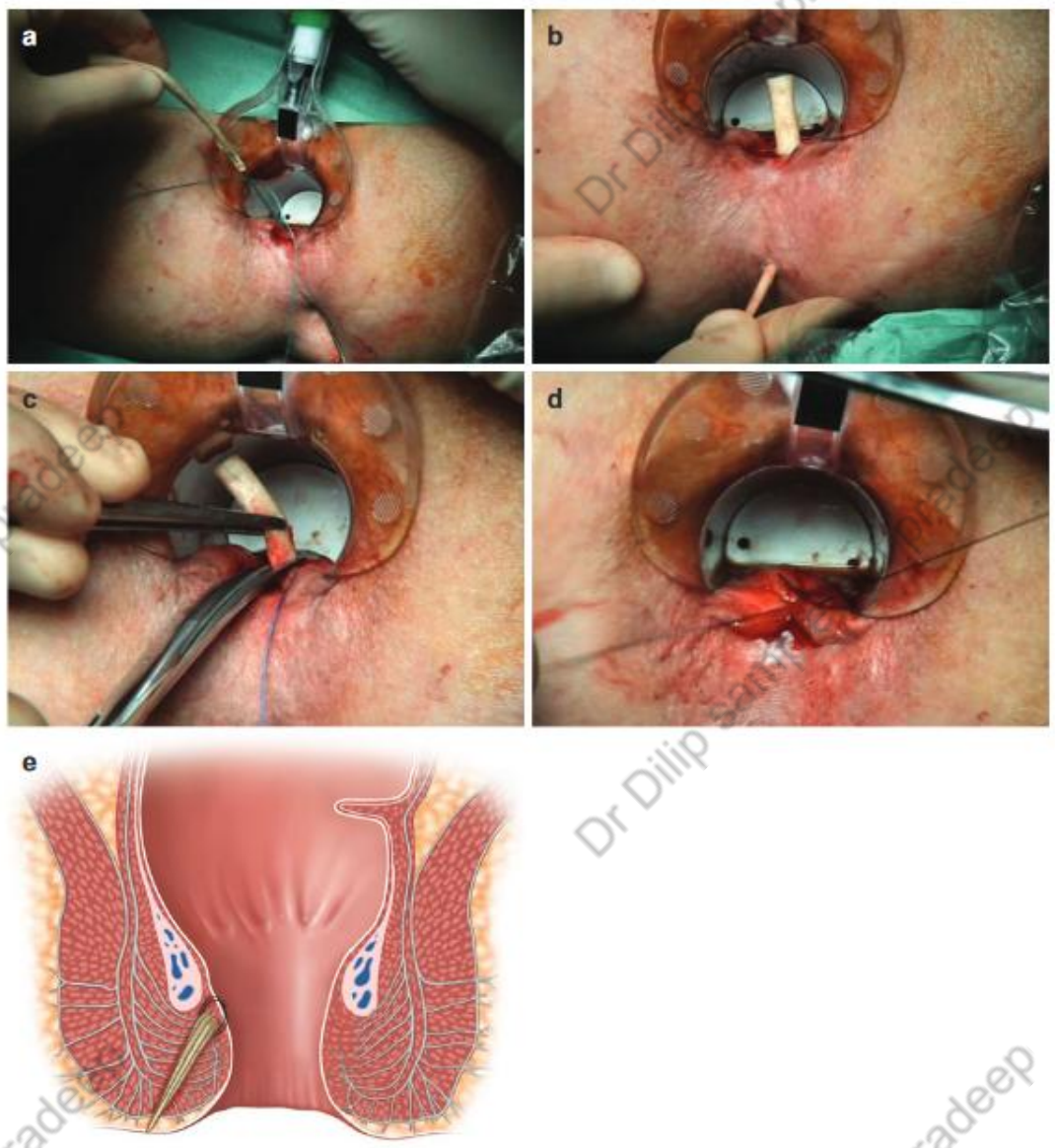

Fig. 15.10 (**a–d**) Intraoperative demonstration of the anal fistula plug (Surgisis® AFP) procedure in a patient with high transsphincteric fistula. (**e**) Anatomical view of obliterated fistula tract following placement of anal fistula plug (Surgisis® AFP)

FILAC FISTULA LASER CLOSURE

- IT IS A NOVEL SPHINCTER SAVING PROCEDURE FOR THE TREATMENT OF ANAL FISTULA.PRIMARY CLOSURE OF THE TRACT IS ACHIEVED USING LASER ENERGY EMITTED BY A RADIAL FIBER CONNECTED TO A DIODE LASER.THE ENERGY CAUSES SHRINKAGE OF THE TISSUE AROUND THE RADIAL FIBER WITH THE AIM BEING TO CLOSE THE TRACT.
- THE LASER FILAC PROCEDURE FOR FISTULA IN ANO IS SAFE,RELATIVELY SIMPLE,MINIMALLY INVASIVE,SPHINCTER-SAVING PROCEDURE WITH A HIGH CHANCE OF SUCCESS.

P.GIAMUNDO-COLORECTAL DIS. 2014


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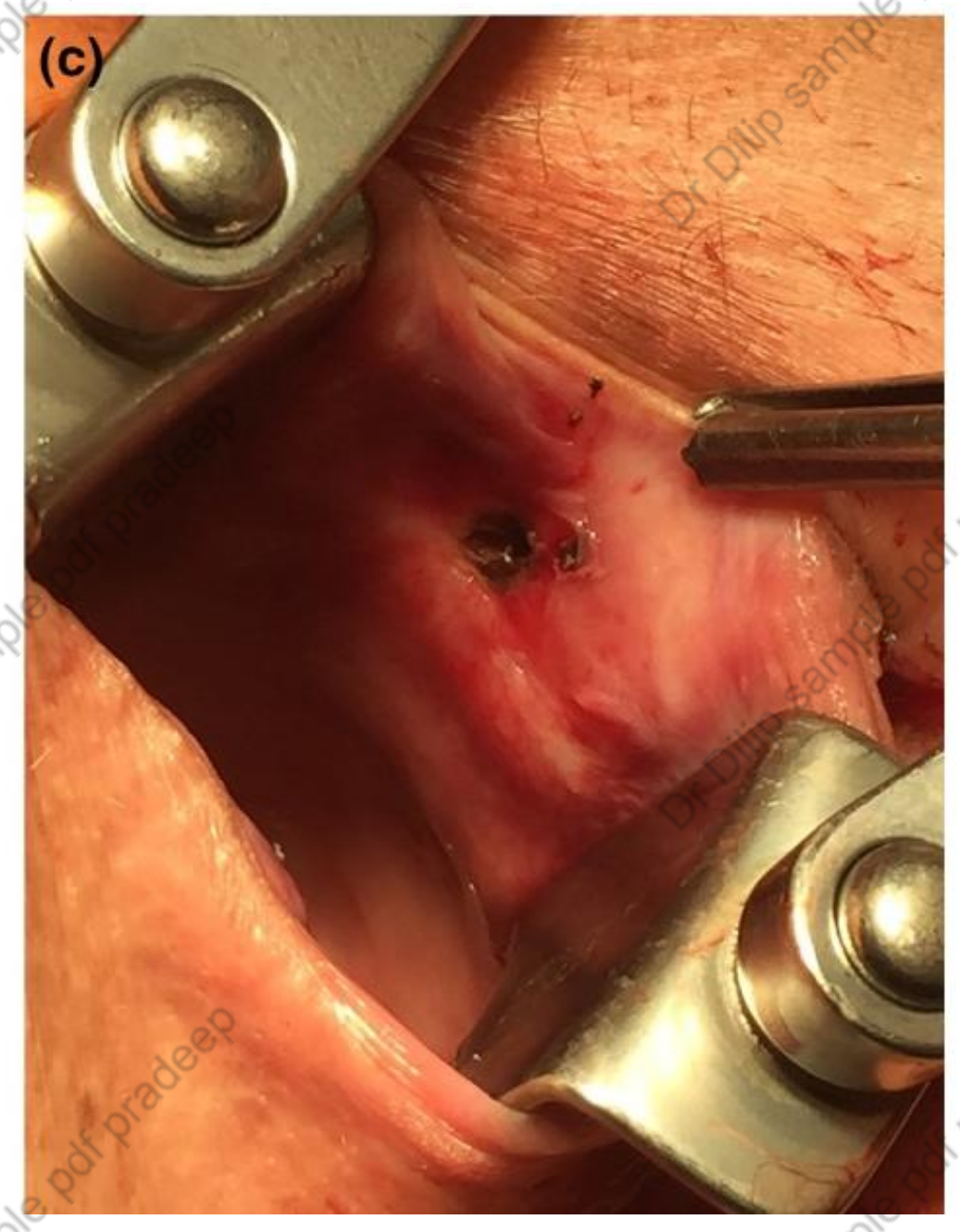

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Case report

Case report: Complex perianal fistula treated with fistula laser closure (FILAC) and suction catheter

Franky Mainza Zulkarnain [a], Daniel Ardian Soeselo [a,b,*], Suryanto [b], Gregorio Gavriel Singgih [c]

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ARTICLE INFO

Keywords:
Complex fistula ani
Fistula laser closure (FILAC)
Case report

ABSTRACT

Introduction and importance: A patient presented with complex perianal fistula treated with fistula laser closure (FILAC) combined with suction catheters.
Case presentation: Male, 29 years old, presented in our department, presented with complex perianal fistula with a history of fistulectomy and tight seton for 6 months in another health facility. Intraoperative findings were a tract of 4,5 cm long, 4 external openings, and 1 internal opening. Definitive treatment of Fistula Laser Closure (FILAC) with 13-watt power laser diode produces by BIOLITEC German.
Conclusion: The patient recovers within 6 months. Promising results have been shown by combining FILAC and suction catheter for complex perianal fistula.

1. Introduction and importance

A complex perianal fistula is a hard-to-treat diagnosis, requiring careful approaches. High risk for complication such as fecal or flatus incontinence and recurrences, causes the needs for advance procedure. FILAC was chosen for its safety and effectiveness to treat transsphinteric anal fistula. FILAC is a new sphincter-saving technique that uses laser diode to obliterate fistula tract. Combination with a suction catheter promotes FILAC to achieved primary closure.

2. Case presentation

Male, 25 y.o., presented with a chief complaint of multiple openings around the anus, with a discharge of fluid and feces. The patient has a history of fistulectomy and seton application in another health facility with no satisfactory progress of healing for 6 months, therefore the patient decided to come to our department (Fig. 1). There are no prior history of drug use, familial diseases, and chronic infection. Laboratory findings showed a normal hemoglobin level (14.4 mg/dL), hematocrit (44%), erythrocyte (5.1 million), and a leukocytosis (11.8 thousand). MRI findings confirm a complex fistula with multiple tracts (Park Classification of transsphinteric fistula with secondary tract; St. James University Classification of Grade IV Transsphinteric fistula with ischioanal abscess). The main tract was 4,5 cm long, with internal opening diameter of 6.3 mm and external opening diameter of 5.1 mm and maximum diameter of 9 mm of the tract and seton application in one of the branches accompanied by tubular subcutaneous edema towards left ischiogluteal (Fig. 2).

The patient undergoes general anesthesia and lithotomy position. Fistula exploration discovers the main tract of 4.5 cm long with four branches and a seton (Fig. 3a–b). Seton was removed (Fig. 4), and tract curettage is done with a cytobrush then cleanse with H_2O_2 and NaCl 0.9%. Next, the laser fiber is inserted into a 10 F suction catheter connected with a suction machine of 20 mm Hg pressure (Fig. 5). This combination is intended to create a negative pressure and vacuum effect to minimize the tract's diameter and creating a dry environment for the laser to cut through without any fluid blockage. Before the laser was used, internal opening was closed using 2-0 vicryl. Laser movement began from internal opening until external opening with 13-watt laser power continuous mode, 1 mm/s speed, and cross checking is done every 1 cm to confirm tract closure. This process is applied to other branches. The procedure was done by surgeon Franky Mainza Zulkarnain hence, we called this procedure *Mainza* method. Post-operative intervention includes 2 g of 1st generation Cephalosporin as

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Available online 11 June 2021

DLPL-DISTAL LASER PROXIMAL LIGATION

THE LIFT TECHNIQUE IS USED IN ORDER TO DISCONNECT THE INTERNAL OPENING FROM THE FISTULA TRACT WHILE AT THE SAME TIME EXPLORING THE INTERSPHINCTERIC SPACE FOR RESIDUAL FOCI.THEN REMAINING PART OF THE FISTULOUS TRACT IS TREATED WITH THE FILAC PROCEDURE.IN THIS WAY,THERE IS NO NEED TO CORE OUT THE REMAINING PART OF THE TRACT (AS IN LIFT-PLUS),SINCE THE LASER APPLICATION IS ABLE TO SEAL THE FISTULA WITHOUT ANY EXTERNAL WOUNDING.THIS IS ALLOWED FOR A FASTER RECOVERY WITH MINIMAL POSTOPERATIVE PAIN & THE PATIENT BEING ABLE TO RESUME NORMAL ACTIVITY IN LESS THAN A WEEK'S TIME.

DLPL PROCEDURE

- A SETON PLACEMENT IS DONE UNDER LOCAL ANAESTHESIA & LEFT IN PLACE FOR 3 MONTHS,IN ORDER TO PERMIT THE SEPSIS TO SUBSIDE & ELIMINATION OF OF THE INTERSPHINCTERIC INFECTION & ABSENCE OF SECONDARY FISTULOUS TRACTS.
- FIRSTLY THE SETON IS REMOVED & REPLACED BY METTALLIC PROBE WHICH IS USED AS A GUIDE IN ORDER TO FACILITATE IDENTIFICATION OF THE FISTULA TRACT.TYPICAL LIFT PROCEDURE IS PERFORMED BY METICULOUS DISSECTION THROUGH THE INTERSPHINCTERIC PLANE,DOUBLE SUTURE LIGATION OF THE FISTULA TRACT USING 2/0 VICRYL & FINALLY CUTTING OF THE FISTULA TRACT BETWEEN THE SUTURES.THE INTERSPHINCTERIC PLANE IS FURTHER EXPLORED FOR RESIDUAL CRYPTOGLANDULAR IFECTION FOCI & THOUROUGHLY CLEANSED.ADEQUECY OF LIGATION AT THE SIDE OF THE EXTERNAL SPHINCTER IS CONFIRMED BY NON-PASSING OF HYDRIGEN PEROXIDE SOLUTION WHICH WAS INSTILLED FROM THE EXTERNAL FISTULA OPENING THOUGH THE CATHETER.

DLPL PROCEDURE (CONTD)

- THE LATERAL PORTION OF THE FISTULOUS TRACT IS THEN OBLITERATED USING A DIODE LASER EMITTING ENERGY IN A CIRCUMFERENTIAL MANNER (RADIAL OPTICAL FIBER) WTH A WAVELENGHTH OF 1470NM. THE GENERATOR IS SET TO 13W PROVIDING PULSE ENERGY SHOTS OF 1SEC WITH 0.5SEC DEAD INTERVAL DURING WHICH THE FIBER IS PULLED MOVING FROM MEDIAL TO LATERAL,AS AN STANDARD FILAC PROCEDURE. TOTAL AMOUNT OF ENERGY DELIVERED IS 510 JOULES FOR A FISTULA TRACT WITH A LENGTH OF 3.5CM THE EXTERNAL FISTULA OPENING IS LEFT INTACT & THE PERIANAL IS COVERED WTH STERILE GAUZES.

GEORGIOS K. GEORGIOU INTERNATIONAL JOURNAL OF SURGERY & SURGICAL PROCEDURES 2018

Submucosal Ligation Of Fistula Tract (SLOFT) for ano-rectal fistula: An effective and easy technique

Dilip Umakant Pathak, Vikesh Agrawal & Dr V K Taneja

Abstract

The ideal treatment for ano-rectal fistula should aim towards low recurrence, early recovery and minimal incontinence. The various techniques are described for management of ano-rectal fistula and LIFT (Ligation of Inter-sphincteric Fistula Tract) and VAFT (Video-Assisted Fistula Treatment) are the techniques in vogue but have their disadvantages. We describe the technique of Submucosal Ligation Of Fistula Tract (SLOFT) for ano-rectal fistula which we believe is an effective technique with the advantage of better cosmesis.

Keywords: anorectal fistula, fistula-in-ano, submucosal, ligation.

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Vikesh Agrawal MS MCh Consultant Surgeon, Jabalpur Hospital and Research Centre, Jabalpur, India 482002 *Email:* drvikeshagrawal@gmail.com

Dr VK Taneja Consultant Surgeon, Jabalpur Hospital and Research Centre, Jabalpur, India, 482002 *Email:* drvikeshagrawal@yahoo.co.in

The tract is identified over the probe and is dissected all around to the nearest point possible to the internal opening in the sub-mucosal plane. The tract is ligated and divided with Polyglactin-910, 2-0, suture after withdrawal of the probe. 0.5 cm of tract is excised beyond the division, for histopathology. The mucosal incision is left unclosed and with a betadine pack for several hours. (Figure 1,2) Patients are routinely advised post operatively regarding warm baths, cleansing the area, oral diclofenac pain releif, local antibiotic application and stool softener. Patients were followed weekly for the first month and then fortnightly for 3 months, and on each occasion examined for healing, abscess, recurrence, stenosis and incontinence.

SLOFT

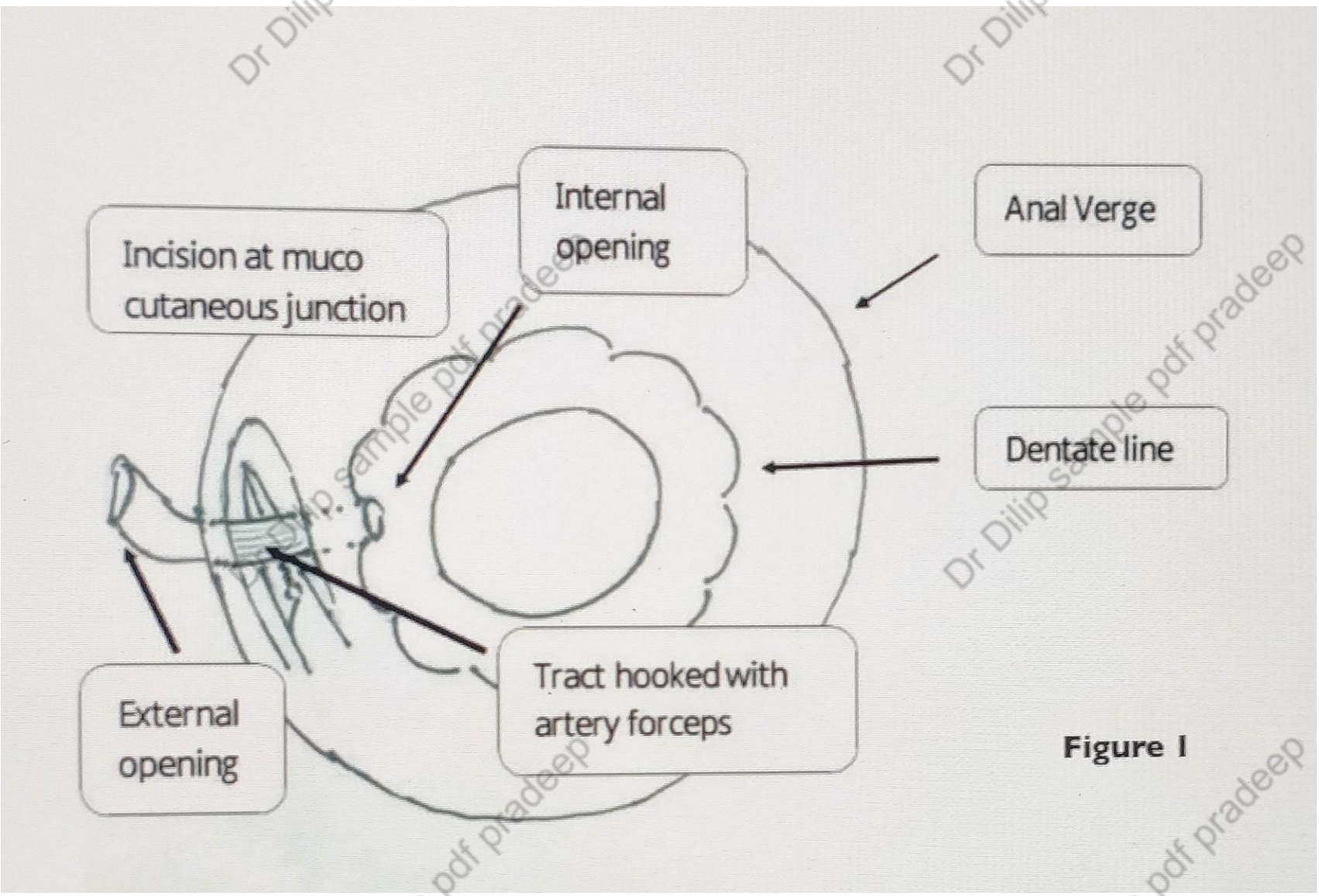
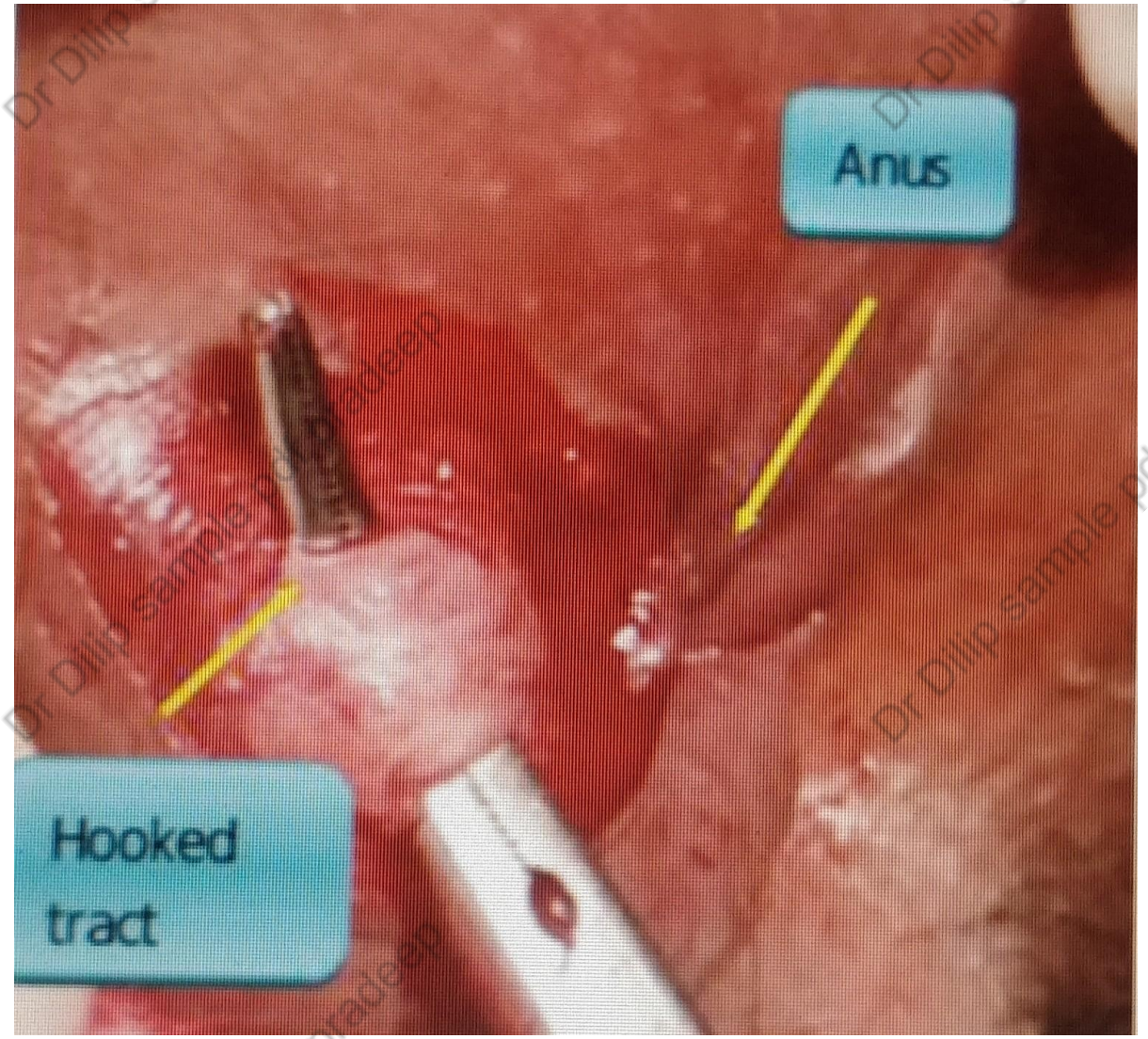
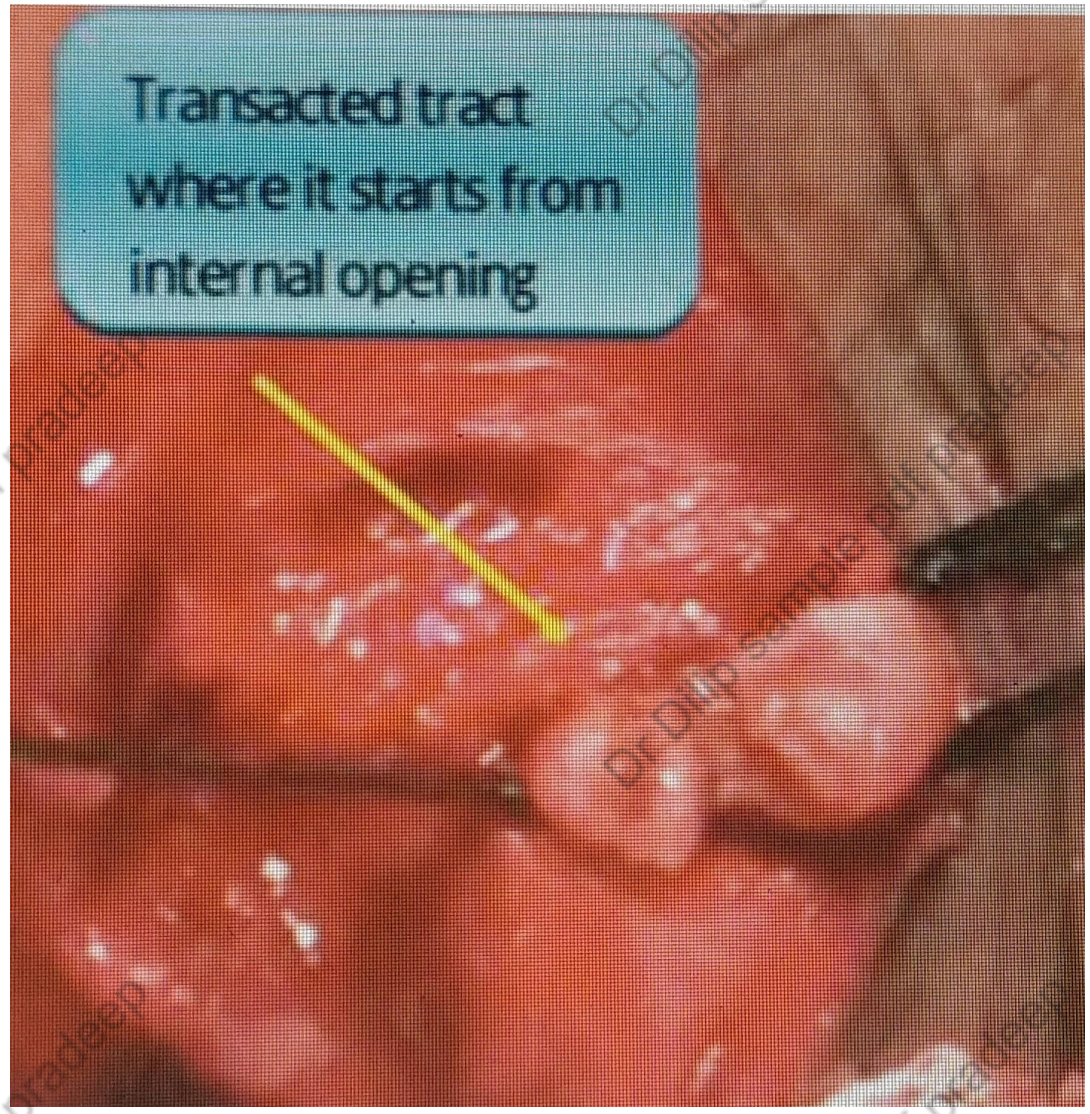
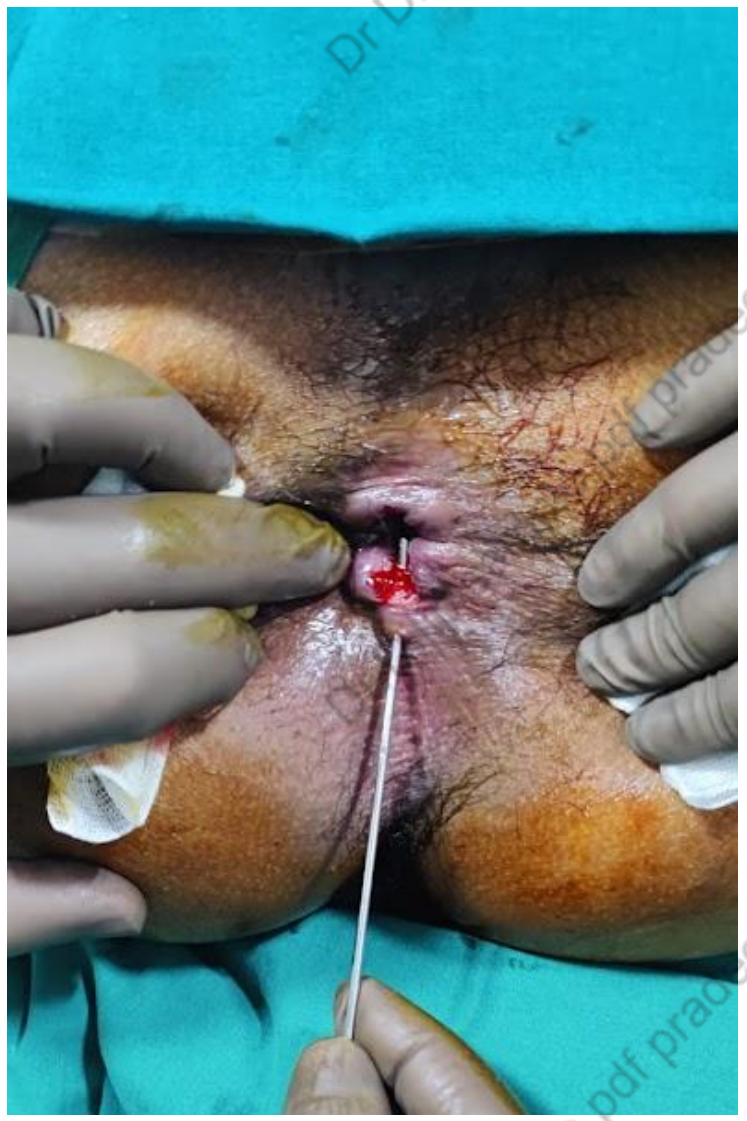


Figure I





NON GLANDULAR ANAL FISTULA DUE TO ANAL FISSURE



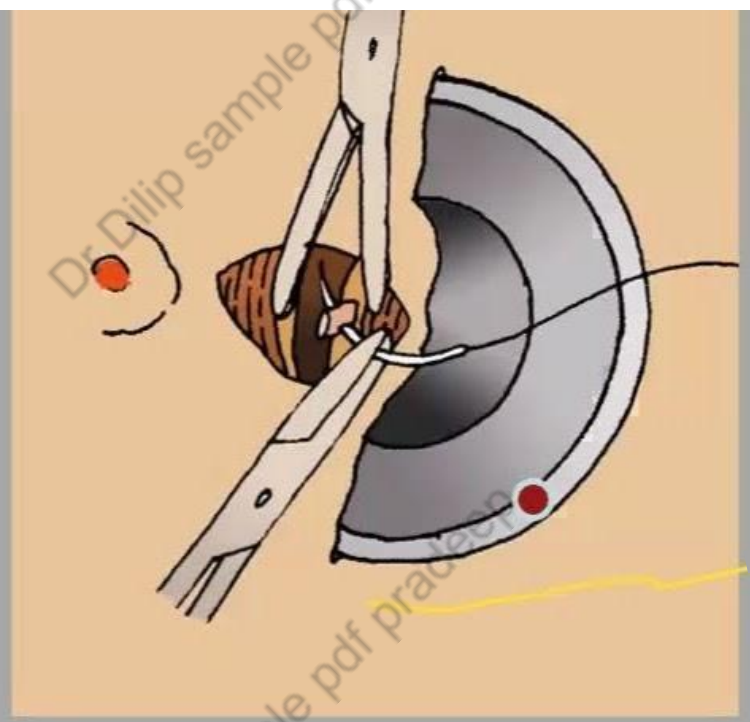
LASER TREATMENT FOR ANAL FISTULAS : WHAT ARE THE PITFALLS

THE PROCEDURE CONSISTS OF DELIVERING **LASER ENERGY AT 360** degree WITHIN THE LUMEN OF THE FISTULA BY MEANS OF LASER FIBER WHICH IS SLOWLY WITHDRAWN FROM THE EXTERNAL OPENING.LASER ABLATION IS LIMITED TO LUMEN OF THE FISTULA MAKING THE TECHNIQUE **SPHINCTER SAVING**.THE GREAT VARIABILITY IN TYPE,LENGTH & SIZE PLAY A MAJOR ROLE IN AFFECTING THE SUCCESS RATE.THE SHRINKAGE OF FISTULA TRACT CAUSED BY THE LASER DEPENDS ON WAVELENGTH & THE AMOUNT OF LASER BEAM DELIVERED WITHIN THE TRACT.THE SHRINKING EFFECT OF LASER SHOULD **SUCCESSFULLY HEAL FISTULAS OF DIAMETER MAXIMUM 4 TO 5MM.**THE DISTAL PART OF THE FISTULA ,PARTLY CROSSING THE ISHCHIORECTAL FOSSA EXTENDING FROM THE EXTERNAL MARGIN OF EXTERNAL SPHINCTER TO THE EXTERNAL OPENING OF THE FISTULA HAS **LOWER POTENTIAL FOR SUCCESSFUL SHRINKAGE BY MEANS OF LASER.THIS IS MAINLY DUE TO SOFT & LESS FIBROTIC TISSUE** SURROUNDING THE DISTAL & SUBCUTANEOUS PART OF THE FISTULOUS TRACT WHICH IS LESS SENSITIVE TO THE SHRINKAGE DELIVERED BY THE INTRALUMINAL LASER BEAM.THE **CURETTAGE & INSERTION SIALASTIC DRAIN** IN THE LUMEN OF THE FISTULA IN A FIRST STAGE OPERATION AS BRIDGE TO LASER TREATMENT MAY INDUCE THE FORMATION OF THE FIBROTIC TISSUE MODELLING THE FISTULA AROUND THE AROUND THE DRAINING LOOP .**AFTER12 WEEKS THE DIAMETER OF THE FISTULA BECOMES 4MM OR LESS MAKING THE FISTULAS MORE SUITABLE FOR LASER THERAPY**.THE SHRINKAGE EFFECT LASER ON THE INTERNAL OPENING OF THE FISTULA IS SUFFECIENT TO CAUSE ITS SEALING.**IN CASE OF WIDER INTERNAL OPENING WHEN INTERNAL OPENING IS LARGER THAN LASER PROBE**,ESPECIALLY IF THE SURROUNDING AREA IS WELL VASCULARIZED & NOT FIBROTIC.IN THIS CASE INTERNAL OPENING SHOULD BE DONE BY **SUTURE,FLAP OR LIFT TECHNIQUE**.**FISTULAS REQUIRING LESS THAN 400JOULES HAD A HIGHER HEALING RATE IF YOU COMPARED TO FISTULAS REQUIRING MORE THAN 400J**.

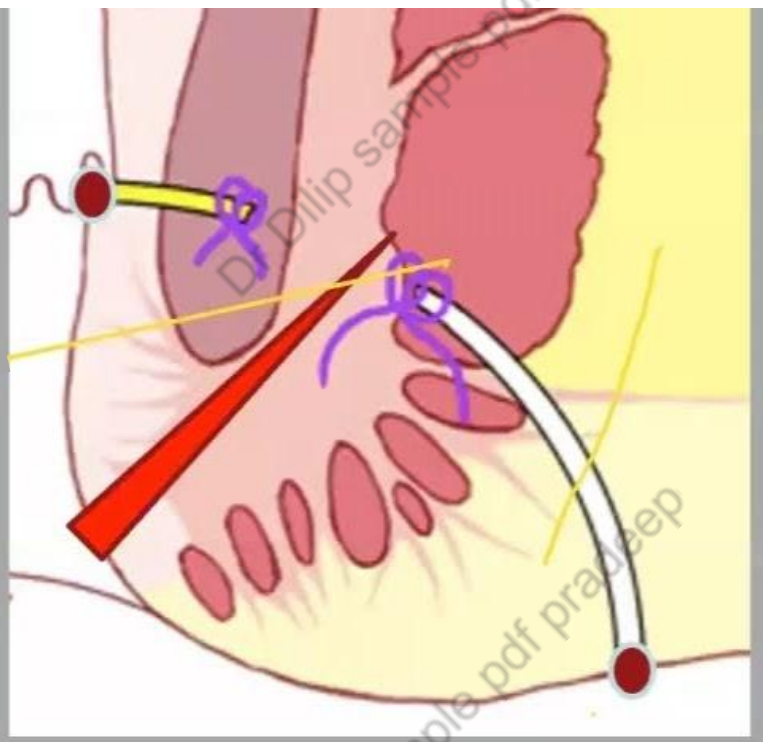
P.GIAMUNDO,SPRINGER 2020

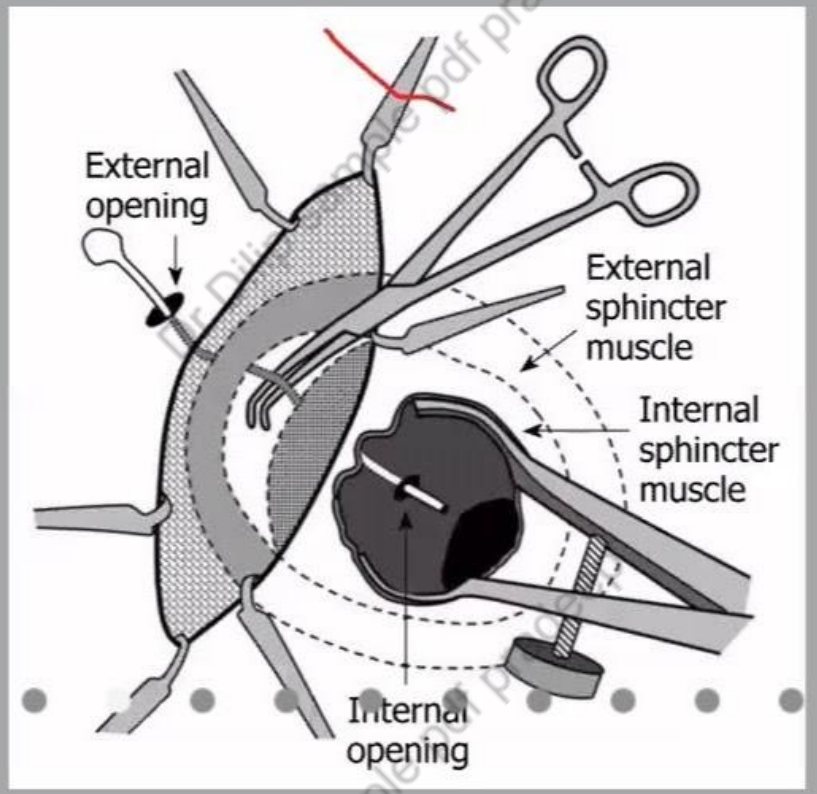
LIFT

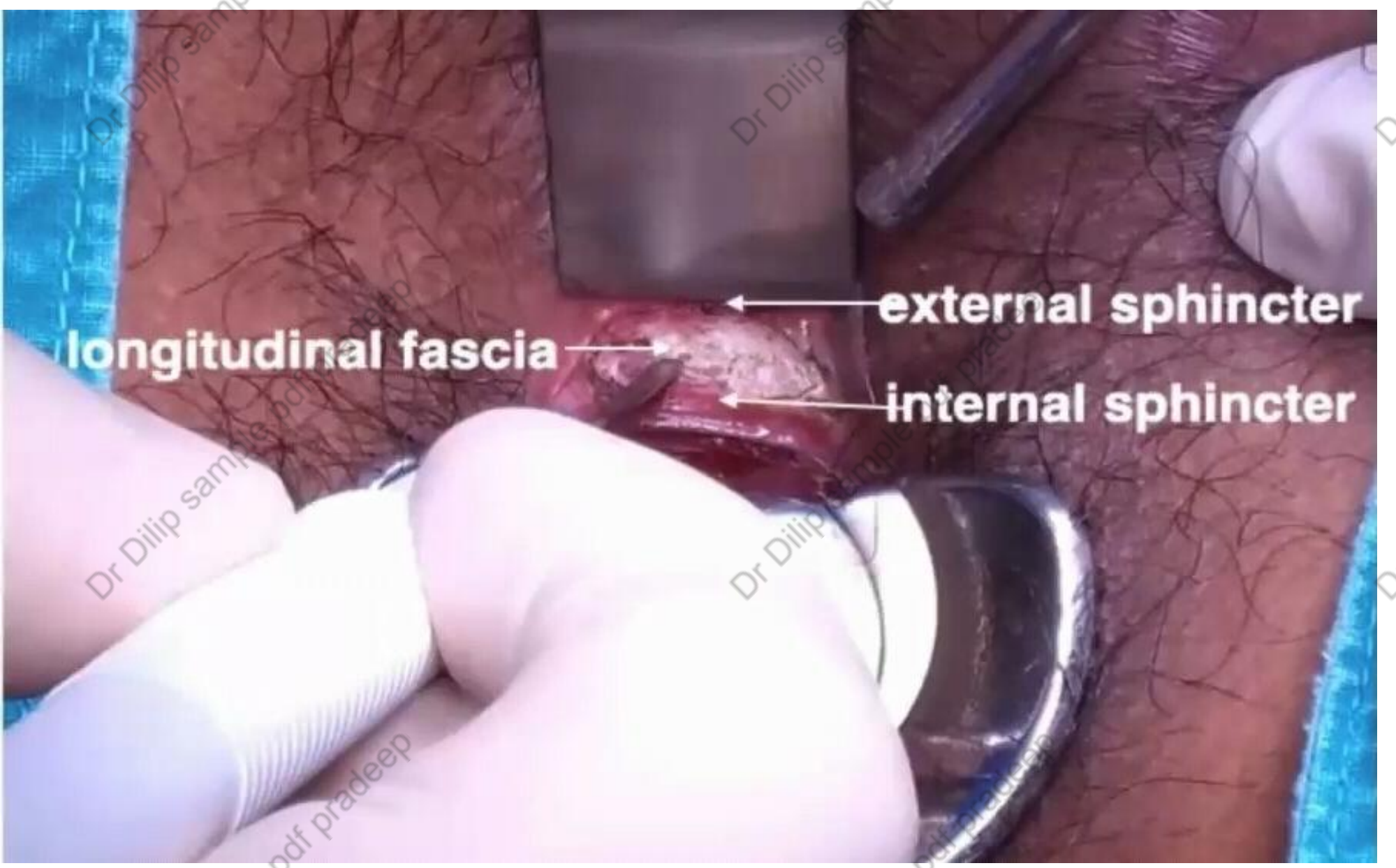
DR.ARUN ROJANASAKUL



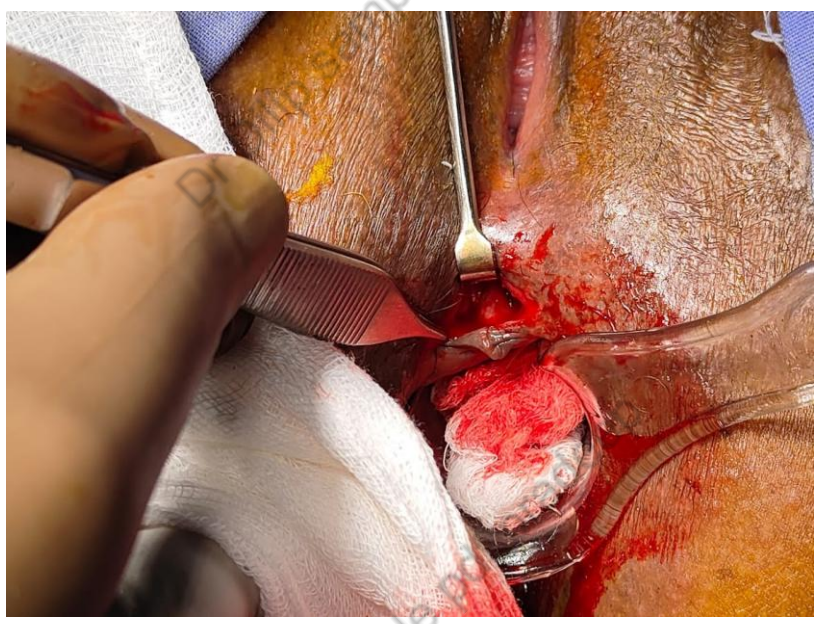
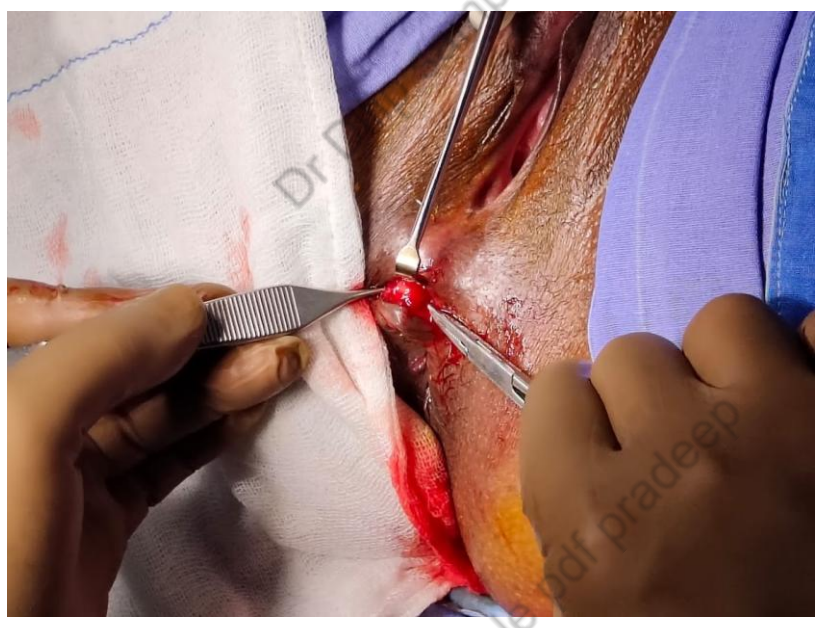
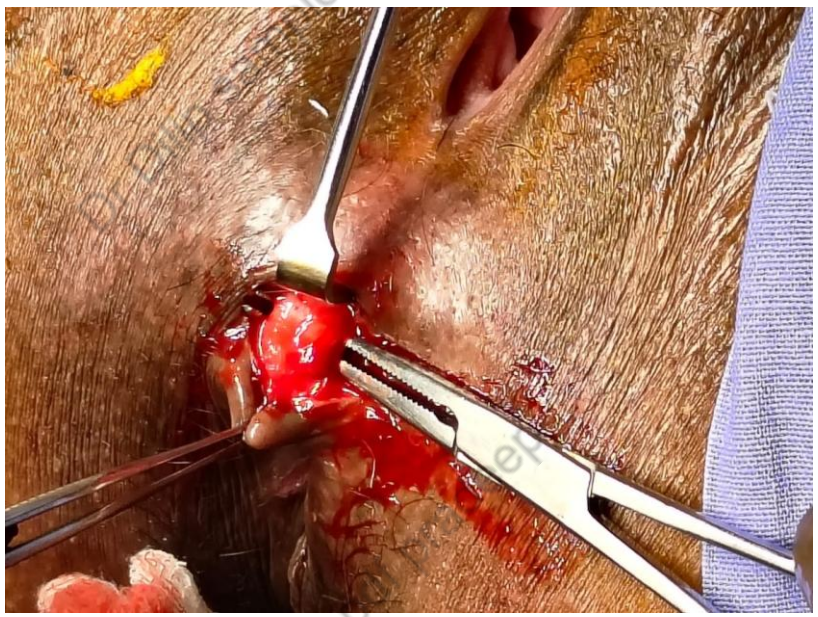
Ligation Intersphincteric Fistula Tract

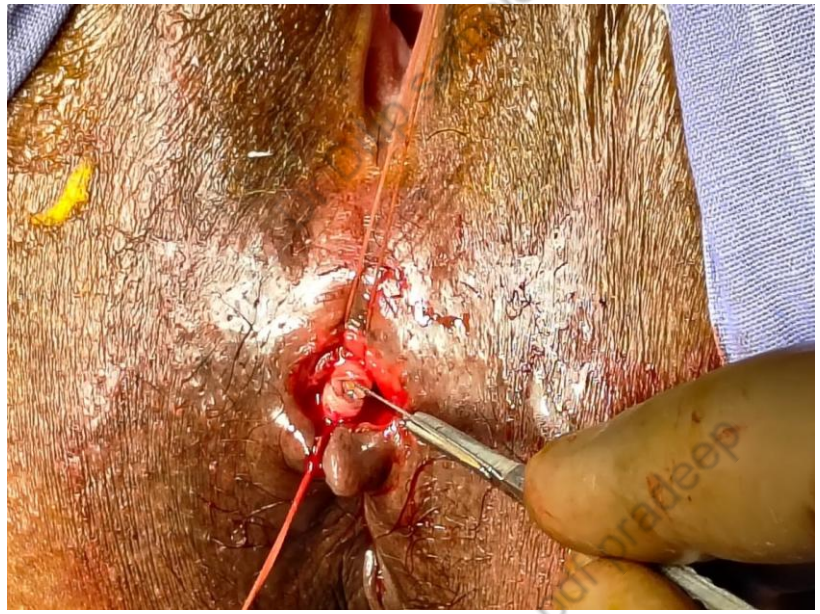






Correct Dissection Plane In Intersphincteric Groove



CROHN'S DISEASE-ANAL FISTULAS WITH PERIANAL ABSCEESS

GLOBAL™ HOSPITALS

NAME : Mrs. DAMAYANTI KHARWA

IP No. : 842112010013 UHID : 840028970

IMPRESSION:

- Enhancing, long-segment mild wall thickening noted involving one of the distal ileal loops in the right iliac region with associated mild increased mesenteric vascularity. No significant dilatation of proximal small bowel loops.
- Another moderately long segment of similar bowel wall thickening proximal this segment in the ileal loops with increased mesenteric vascularity and fat stranding around it.
- Suspicious mild wall thickening of the terminal ileum at the ileocecal junction.
- Multiple mildly enlarged intramesenteric lymph nodes in the right iliolumbar region without any necrosis within.
- Features are likely suggestive of inflammatory etiology, possibility of inflammatory bowel disease like Crohn's needs to be evaluated for. Further evaluation and correlation with colonoscopy findings is suggested.
- No evidence of any significant dilatation of small bowel loops seen.
- Minimal interbowel fluid in the pelvis.
- Multiple duodenal diverticuli.
- Diffuse hepatic steatosis.

DR. PARUL GARDE
Consultant Radiologist

Dr. SONA PUNGAVKAR
Consultant Radiologist

DR. RASHMI BADHE
Consultant Radiologist

SUBURBAN DIAGNOSTICS
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REPORT

CID	: 2401013002		
Name	: MRS.DAMAYANTI N KHARWA IPD		
Age / Gender	: 60 Years / Female		
Consulting Dr.	: VIKRAMADITYA RAWAT	Collected	: 10-Jan-2024 / 19:43
Reg. Location	: ACME HEALTHCENTER PRIVATE LIMITED	Reported	: 15-Jan-2024 / 20:17

HISTOPATHOLOGY BIOPSY: SMALL SPECIMEN
HISTOPATHOLOGY REPORT

SPECIMEN : (SDH - 383/24)

Terminal ileum biopsy.

MACROSCOPY :

Received single mucosal tissue bit measuring 0.2 x 0.2 x 0.2 cm.

[Tissue completely submitted, one paraffin block].

MICROSCOPY :

Sections show ileal mucosal bits with maintained villous architecture. There is mild to moderate lymphoplasma cell infiltrate and eosionophilic infiltrate.

There is no evidence of villous atrophy, increased intraepithelial lymphocytes, cryptitis, crypt abscess, granuloma, malignancy.

IMPRESSION :

Terminal ileum biopsy : Moderate ileitis with mild increase in eosinophils.

No evidence of granuloma / cryptitis / crypt abscess / malignancy.

*Sample processed at SUBURBAN DIAGNOSTICS (INDIA) PVT. LTD SDRL, Vidyavihar Lab

*** End Of Report ***

ilac-MRA

MC-5460

Dr.VRUNDA SHETH
MBBS,DNB(Path),Dip.FRCP.
CHIEF OF HISTOPATHOLOGY &
CYTOPATHOLOGY

SDRC
SIDDHI DIAGNOSTICS & RESEARCH CENTRE

PATIENT NAME : DAMYANTI KHARWA **DATE : 11-NOV-23**
REFERRED BY : K & K SUPERSPECIALITY HOSPITAL **AGE / SEX : 60 Y / F**

There is scarring in the fat in the left labia and left ischio-rectal fat. It involves the left lateral wall of the vagina as well as the anal canal.

Few small bilateral inguinal lymph nodes are seen.

IMPRESSION:

Post-operative status.

MR scan reveals,

- **Multiple tracts in the left perineal and perianal region. One skin opening is seen in the rectovaginal septum on the left side. This tract has a transsphincteric course and is likely to be opening into anal canal at 2 o' clock position.**

- **Two skin openings are seen in the left labia majora. The tracts communicate with each other and extend in the left ischiorectal fat and parallel to the left lateral wall of the anal canal and ends blindly posterior to the left lateral wall of the superior vaginal vault. The inferior portion of the left levator ani muscle is involved. Another posterior tract is short and ends blindly in the gluteal fat.**

To summarize, an abscess is seen on ultrasound deep to the left labia majora. It probably corresponds to the communication between the multiple tracts, described above.

Clinical correlation is recommended.

Dr. Ajit S. Pungavkar
M.D., D.M.R.D.

Dr. Sona A. Pungavkar
D.N.B., D.M.R.D., F.I.C.R

(Investigations have their limitations.These only help in diagnosing the disease in correlation in clinical symptoms and other related tests,which is to be done by the referring doctor).

SDRC
SIDDHI DIAGNOSTICS & RESEARCH CENTRE

PATIENT NAME : DAMYANTI KHARWA **DATE : 11-NOV-23**
REFERRED BY : K & K SUPERSPECIALITY HOSPITAL **AGE / SEX : 60 Y / F**

MRI FISTULOGRAM

Plain and contrast multiplanar MR imaging of the Fistulogram was performed using a phased-array spine coil and large FOV.

Three tracts are visualized in the left perianal, perineal and gluteal regions.

Three openings are identified in the left gluteal skin and over the left labia majora.

One opening is seen on the left aspect of the rectovaginal septum at about 3 o' clock position. The tract arising from this opening is the most medial in location. The diameter of the tract measures 2.5 mm in diameter. The contents are mildly hyperintense on T2 weighted images. The walls are smooth and hypointense, suggestive of fibrosis. The tract is seen to extend anterosuperiorly and in the transsphincteric plane in left lateral wall of the anal canal. It could have a possible opening into the anal canal between 2 and 3 o' clock position. The anteroposterior extent of the tract measures approximately 2.0 cm. The superoinferior extent of the tract measures 4.0 cm.

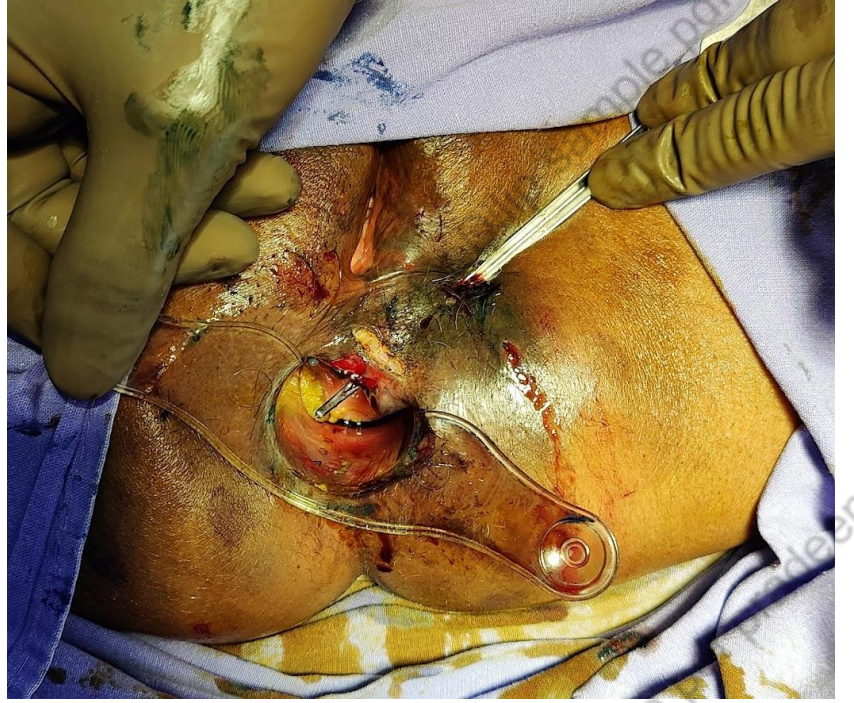
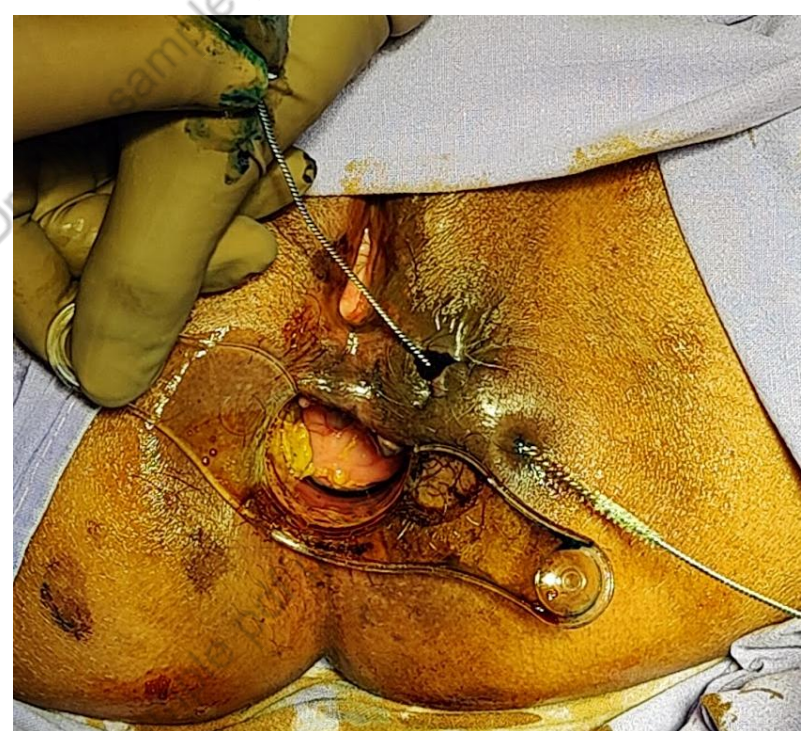
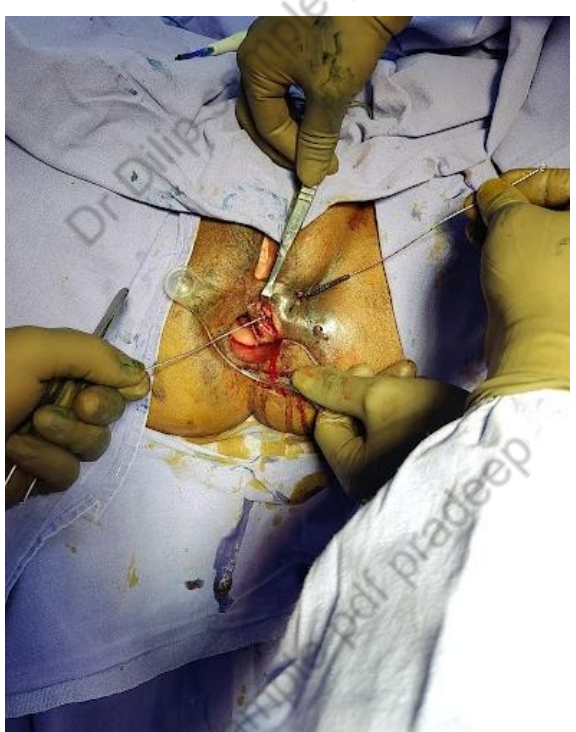
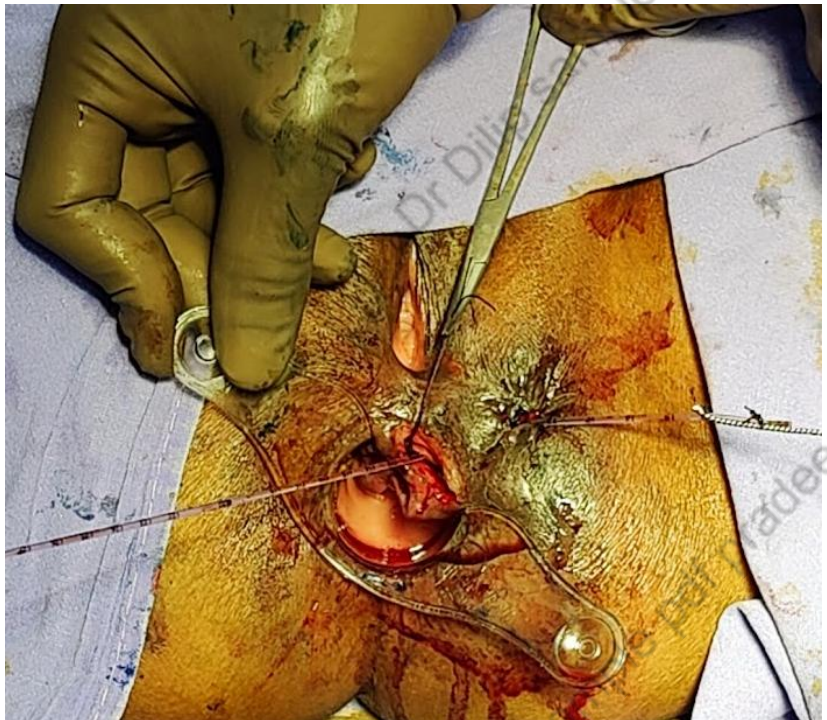
Two other openings are seen inferiorly within the labia majora. Tracts arising from these openings extend laterally. These communicate with each other approximately at depth of about 1.7 cm. The maximum width of this union measures 8 mm.

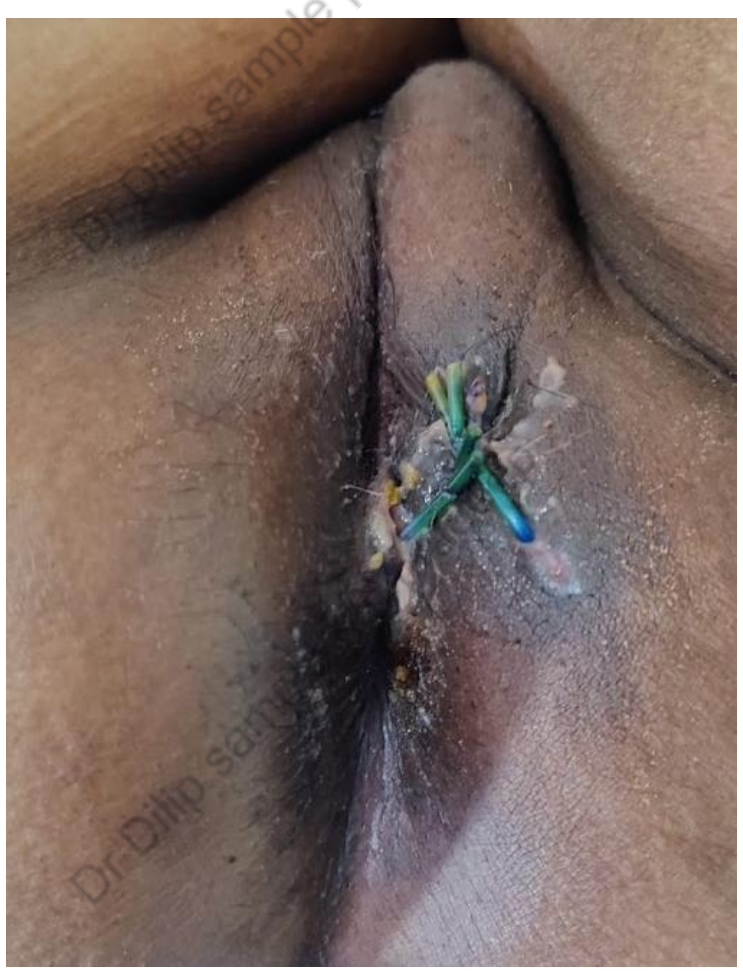
One of the tract extends anterosuperiorly and ends blindly posterior to the left lateral wall of the superior vaginal vault. left posterolateral wall to the vagina. Anterior extent of the tract measures approximately 5.6 cm. The diameter measures approximately 4 mm. The tracts are thick and contents are hyperintense suggestive of fluid. The walls are hypointense, probably due to fibrosis. There is edema around this tract. The inferior portion of the left levator ani muscle is involved. There is edema along the left levator ani and obturator muscles.

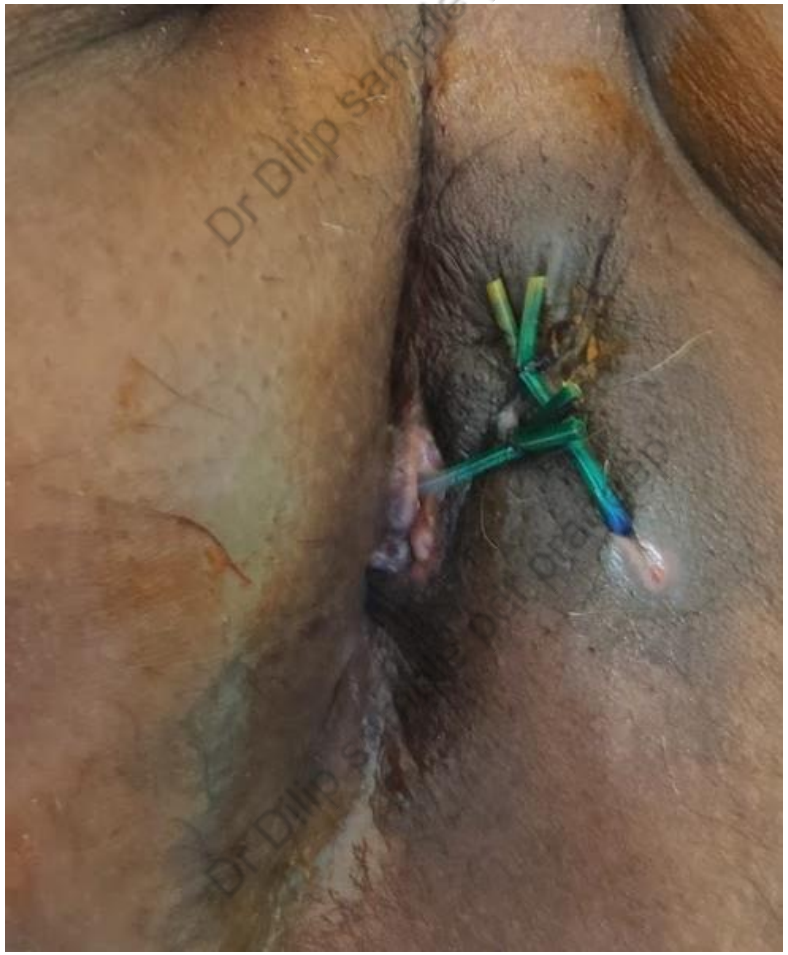
Another short tract extends posteriorly into the gluteal fat and ends blindly. It measures approximately 2.0 cm in length.

P.T.O







APPLICATION OF LASER IN PROCTOLOGY

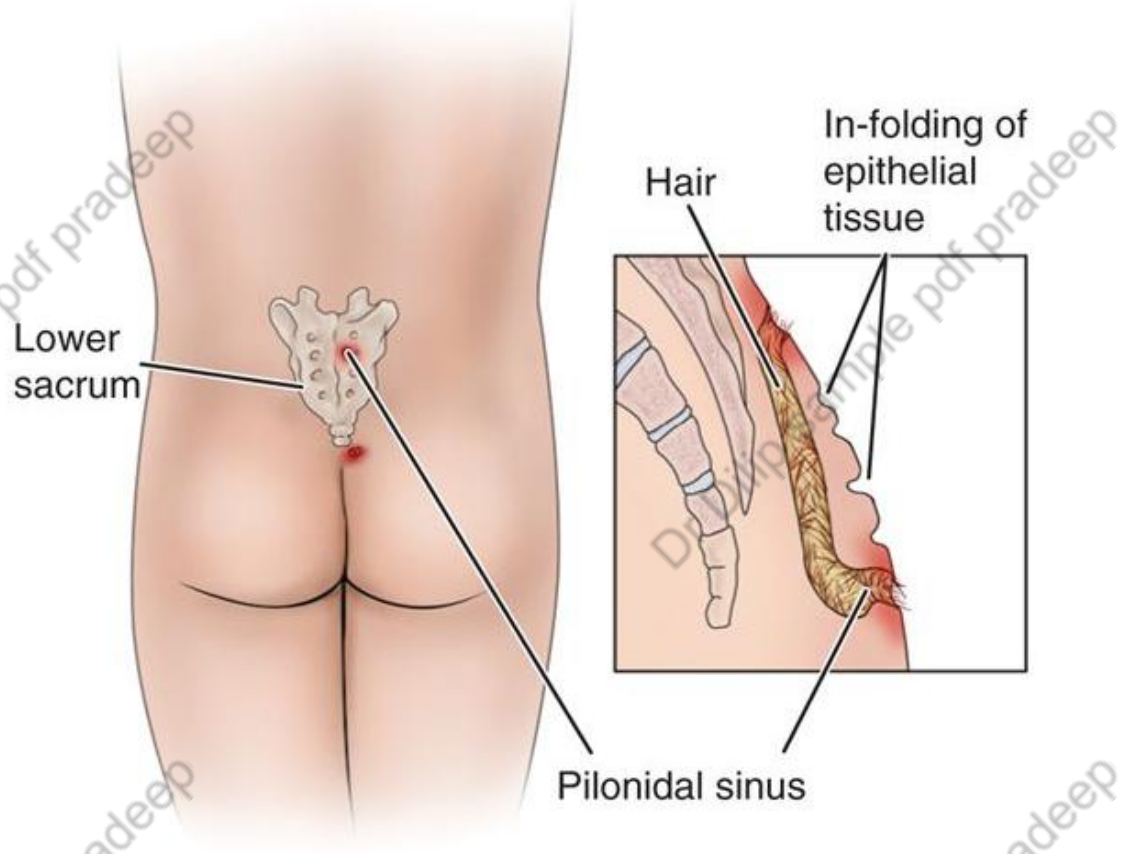
LASER IN PILONIDAL SINUS

DR. DILIP BHOSALE

MS (General Surgery), MBBS
Experience : 35 Years
Speciality : General & Laparoscopic Surgery

Fig. 17.3 This image depicts an acute pilonidal abscess

Pilonidal Sinus



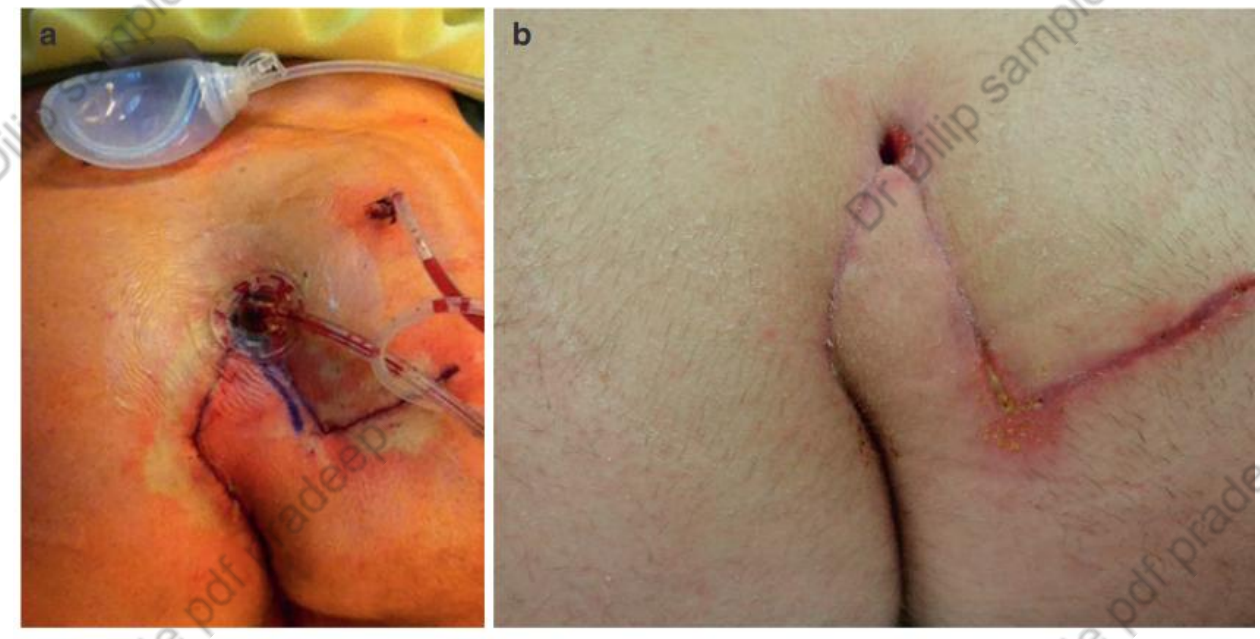


Fig. 17.10 (a, b) This image shows a patient similar to that in Fig. 17.9. The flap was created and closed leavi

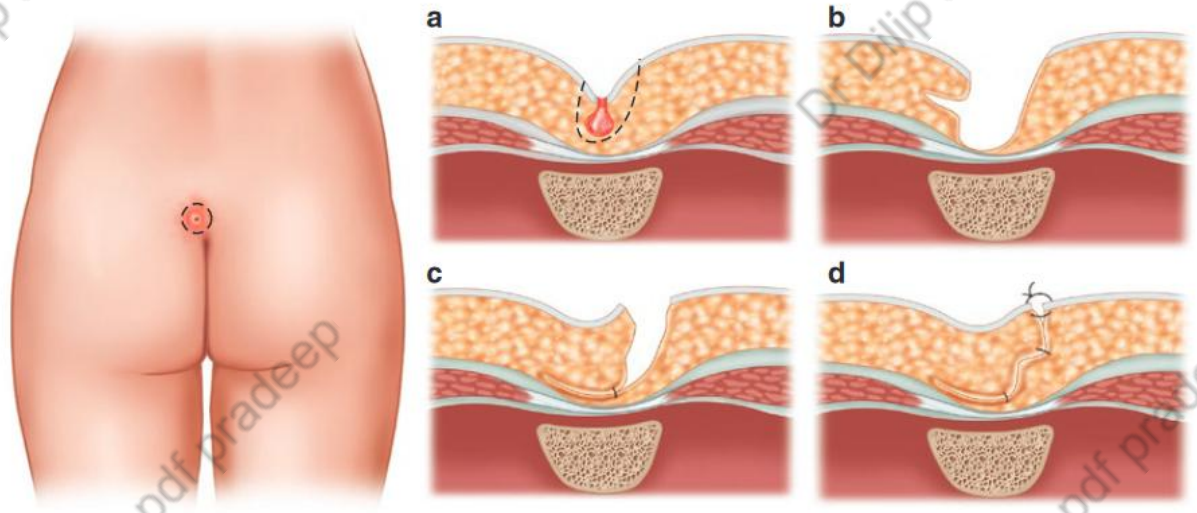


Fig. 17.7 This drawing depicts one method of performing a Karydakis flap

Fig. 17.9 This image shows a patient with recurrent disease that resulted in a large abscess that was drained superiorly and required some tissue debridement. This resulted in a large area of disease to be addressed

Real-world practice and outcomes in pilonidal surgery: Pilonidal Sinus Treatment Studying The Options (PITSTOP) cohort

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PITSTOP Management Group: K Ali, R Brady, G Branagan, S Chaudri, F Di Fabio, G Dennison, D Donnelly, M Evans, E Gerald, S Gonzalez,

Abstract
Background: Numerous surgical approaches exist for the treatment of pilonidal disease. Current literature on treatment is of poor quality, limiting the ability to define optimal intervention. The aim of this study was to provide real-world data on current surgical practice and report patient and risk-adjusted outcomes, informing future trial design.

Methods: This UK-wide multicentre prospective cohort study, including patients (aged over 16 years) who had definitive treatment for symptomatic pilonidal disease, was conducted between May 2019 and March 2022. Patient and disease characteristics, and intervention details were analysed. Data on patient-reported outcomes, including pain, complications, treatment failure, wound issues, and quality of life, were gathered at various time points up to 6 months after surgery. Strategies were implemented to adjust for risk influencing different treatment choices and outcomes.

Results: Of the 667 participants consenting, 574 (86.1%) were followed up to the study end. Twelve interventions were observed. Broadly, 59.5% underwent major excisional surgery and 40.5% minimally invasive surgery. Complications occurred in 45.1% of the cohort. Those who had minimally invasive procedures had better quality of life and, after risk adjustment, less pain (score on day 1: mean difference 1.58, 95% c.i. 1.14 to 2.01), fewer complications (difference 17.5 (95% c.i. 9.1 to 25.9)%), more rapid return to normal activities (mean difference 25.9 (18.4 to 33.4) days) but a rate of higher treatment failure (difference 9.6 (95% c.i. 17.3 to 1.9)%). At study end, 25% reported an unhealed wound and 10% had not returned to normal activities.

Conclusion: The burden after surgery for pilonidal disease is high and treatment failure is common. Minimally invasive techniques may improve outcomes at the expense of a 10% higher risk of treatment failure.

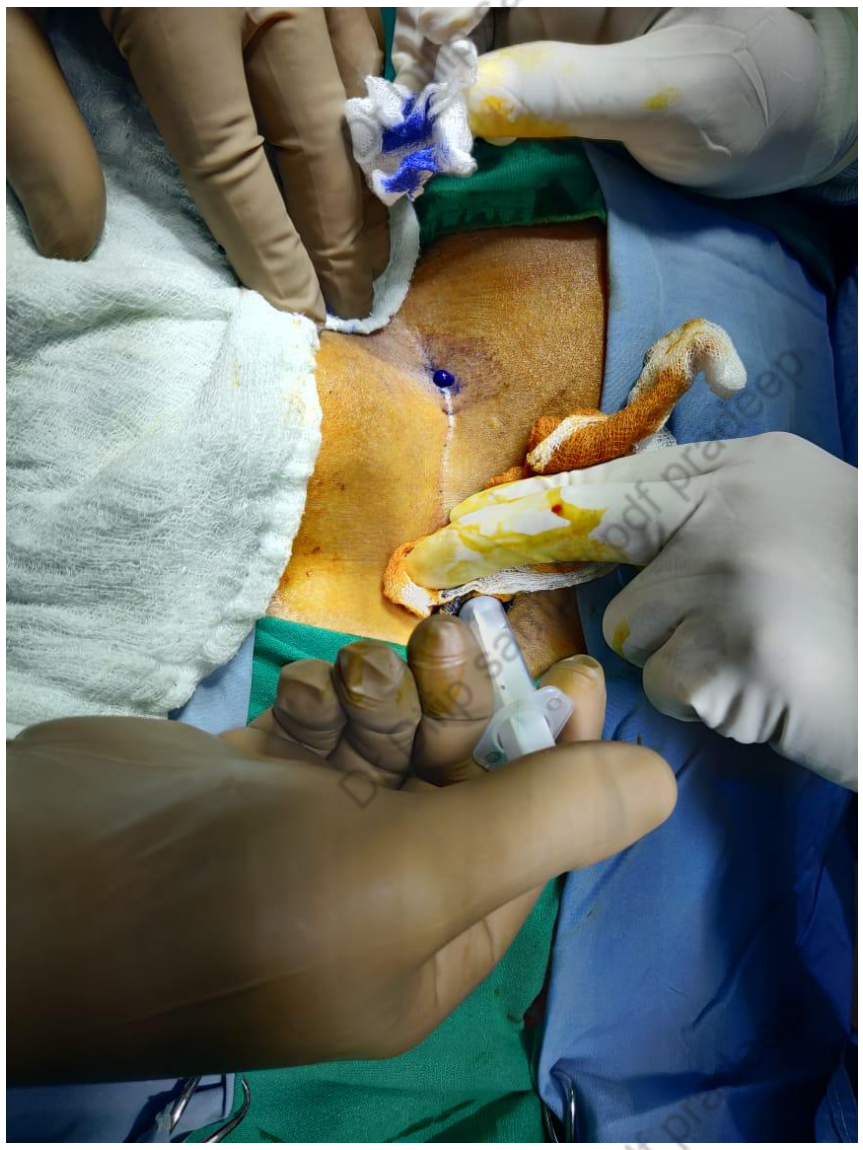
Sinus pilonidalis Minimally Invasive Laser Excision

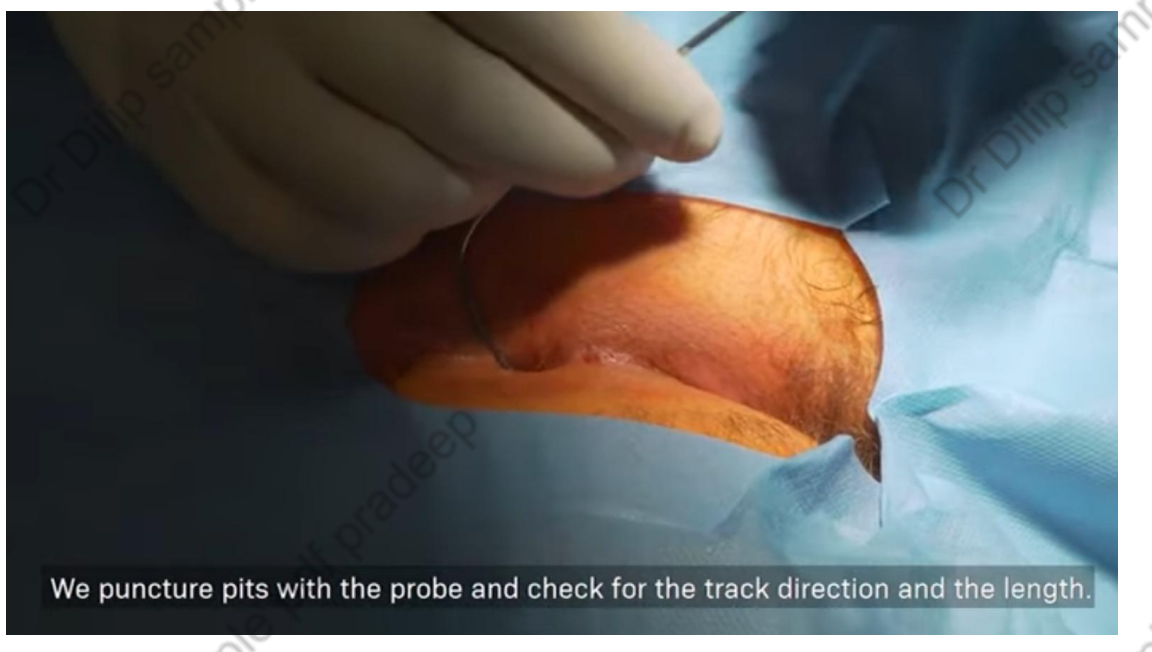
The procedure is minimally invasive and one of the advantages that it can easily be applied for disease with multiple secondary openings and sinus tracts.

These patients, however have a higher recurrence rate, but can be managed with repeated S.M.I.L.E. procedure. Despite multiple orifices cosmetic result after the procedure is still very good and patients can return to normal activity after 3-4 days.

The need for analgesics is low. Patients usually take them for two days in average, and the average VAS score is 3,7 after two days. For acute cases with abscesses we drain the abscess and perform the procedure if the primary sinuses are detectable distinctive in the midline, we also prescribe oral antibiotics after operation for 7 days. In case of not visible sinuses due to abscess we only perform drainage with antibiotics and delay the procedure for 3 weeks.

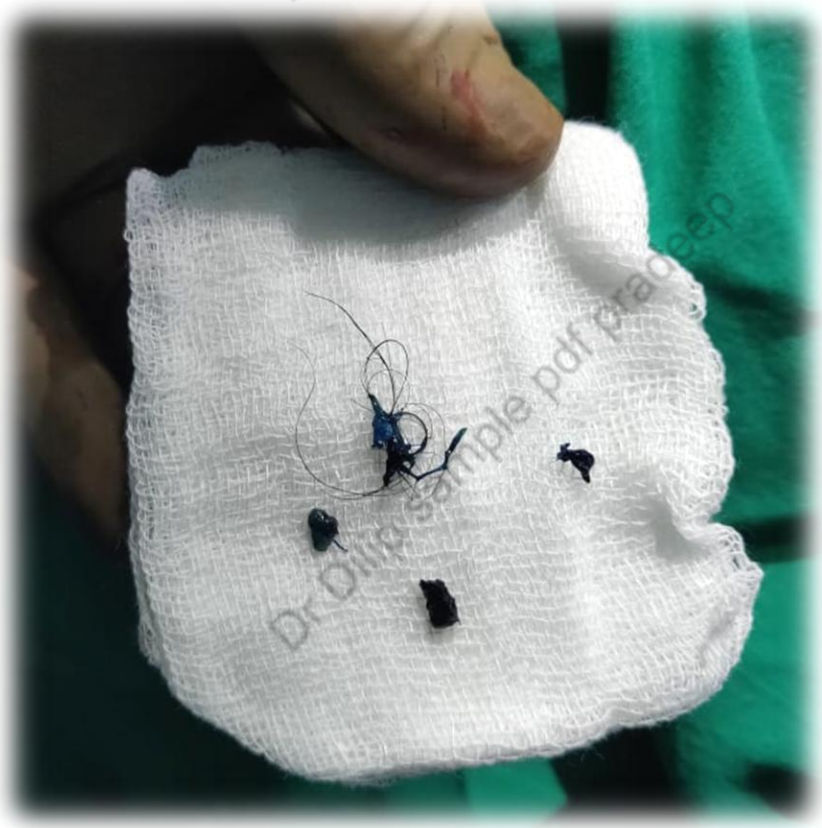

We pull the buttock skin with sticky tape towards the feet to expose the pits.






Grasp the sinus track with forceps or other instrument and excise it circumferentially.


Excise all visible orifices in the same manner.

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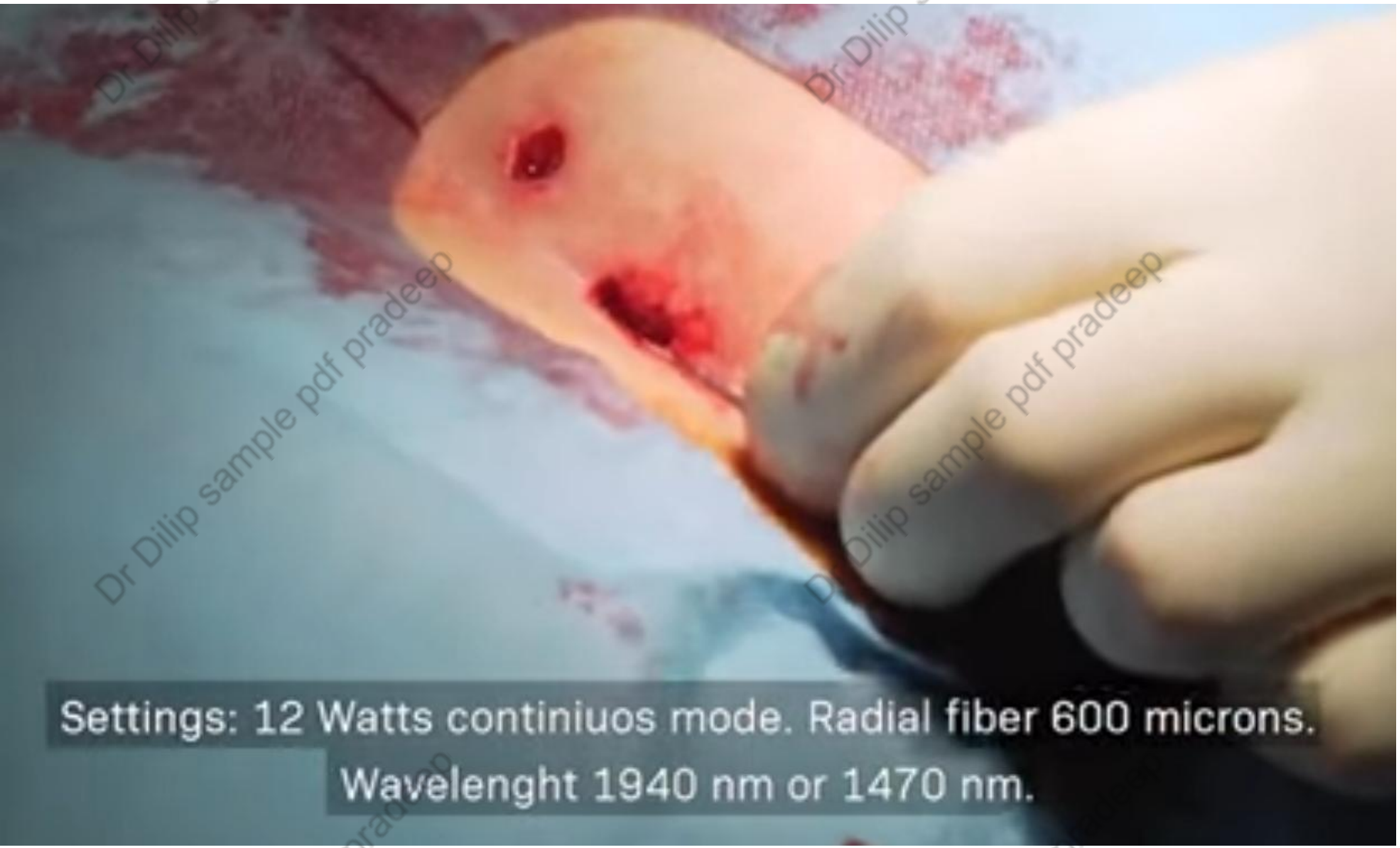
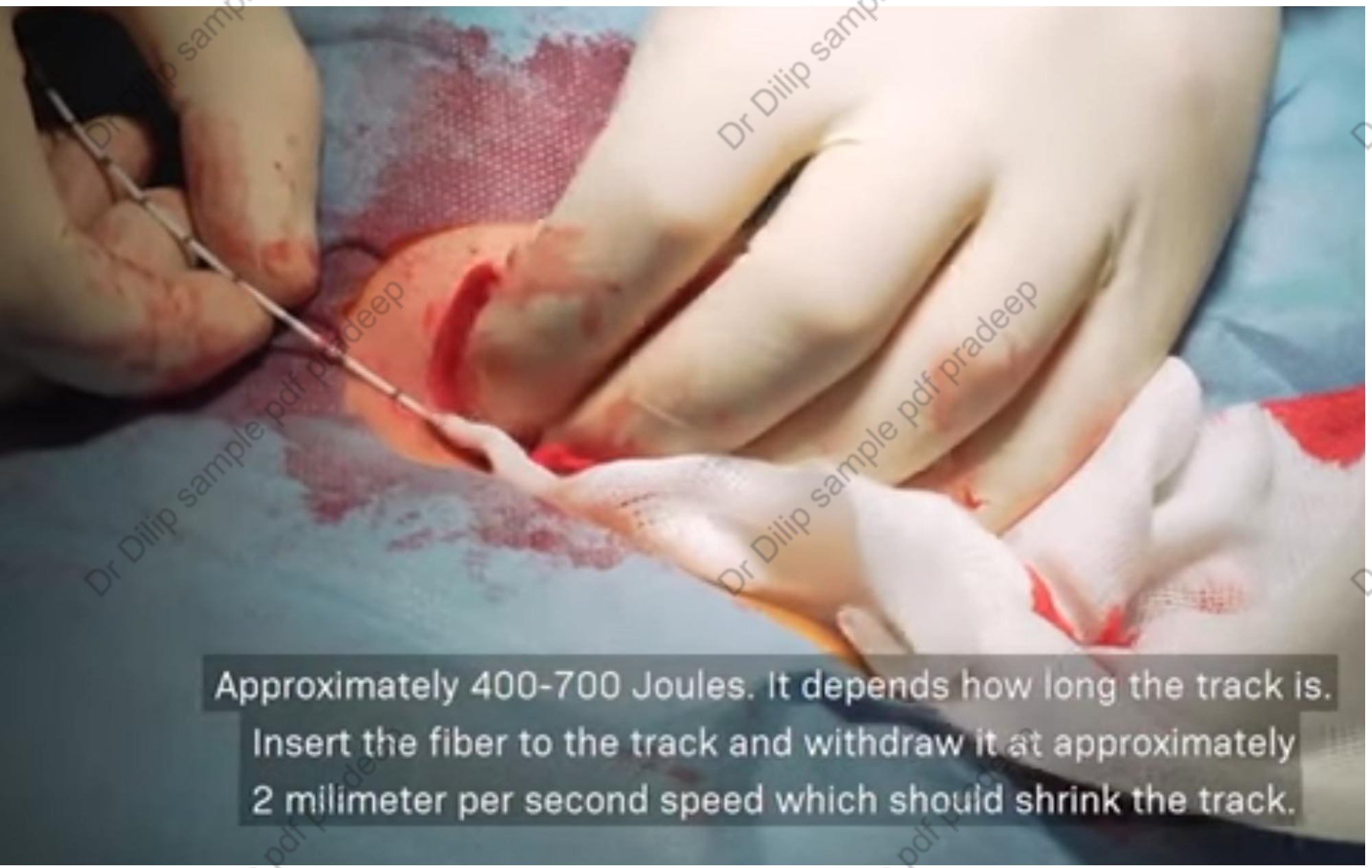
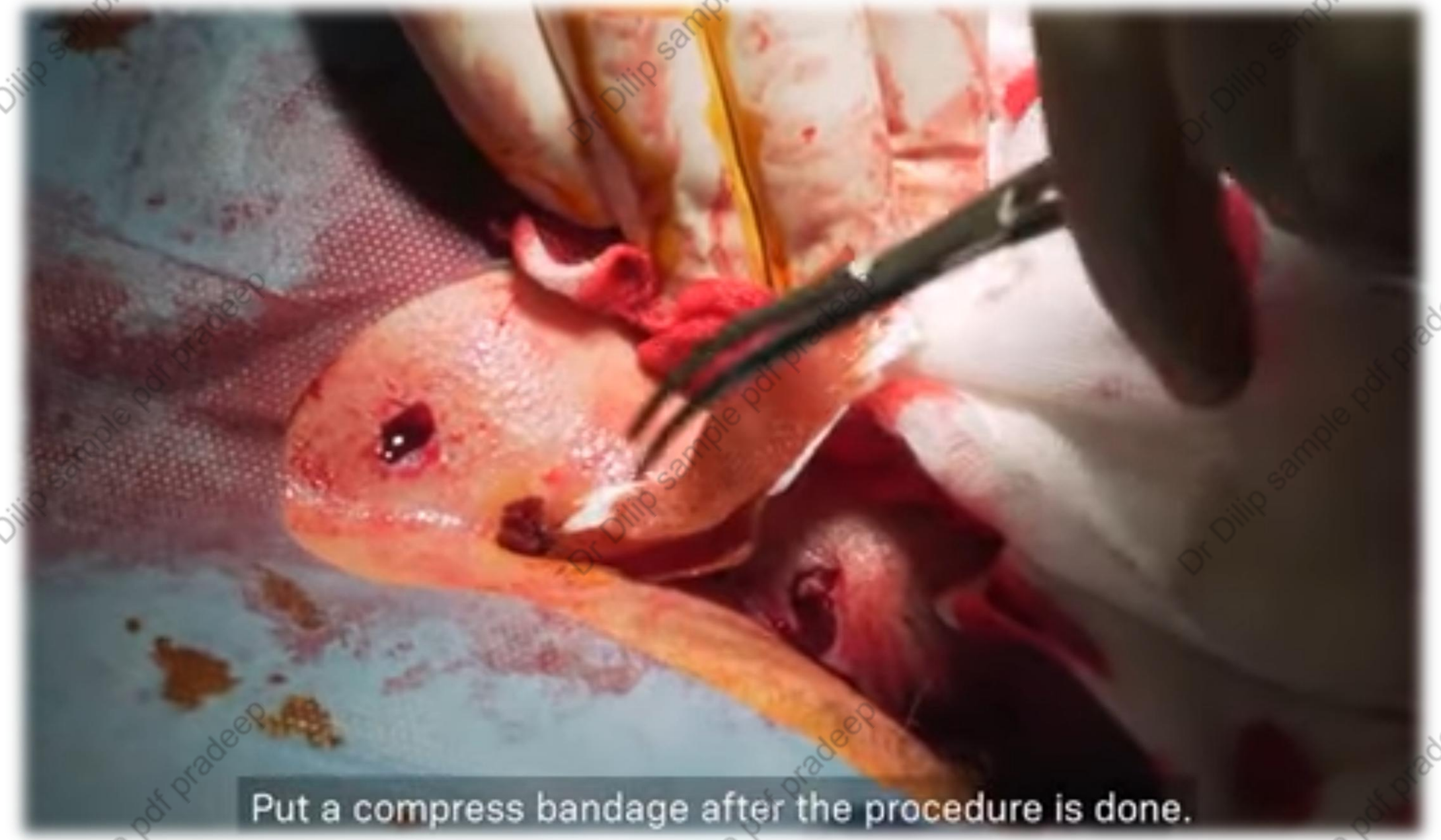
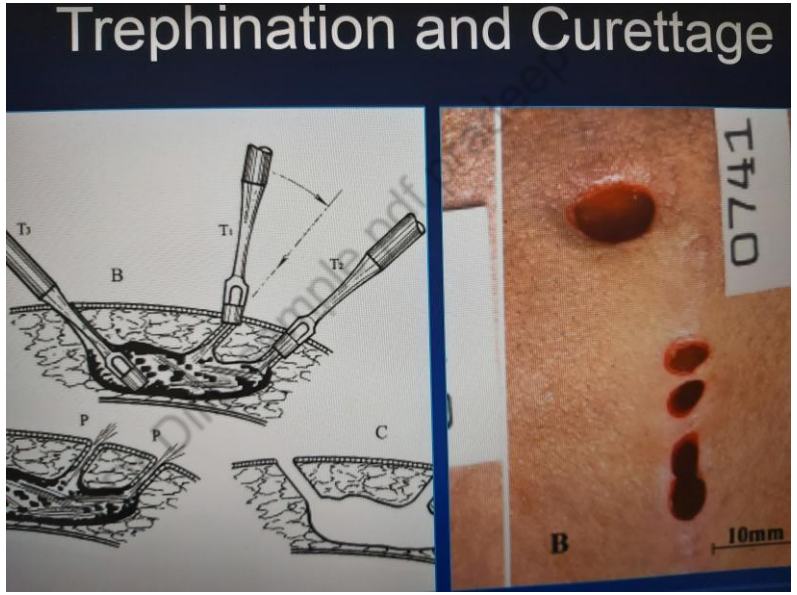
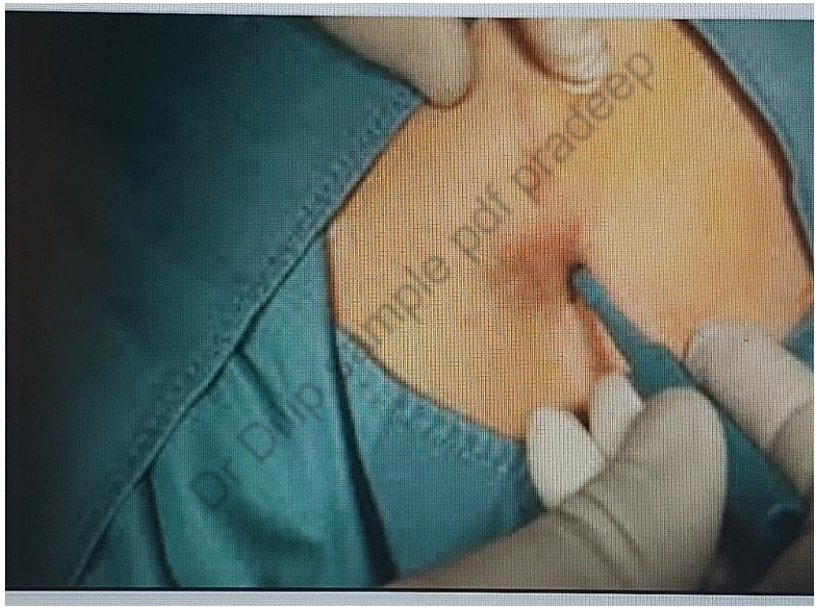


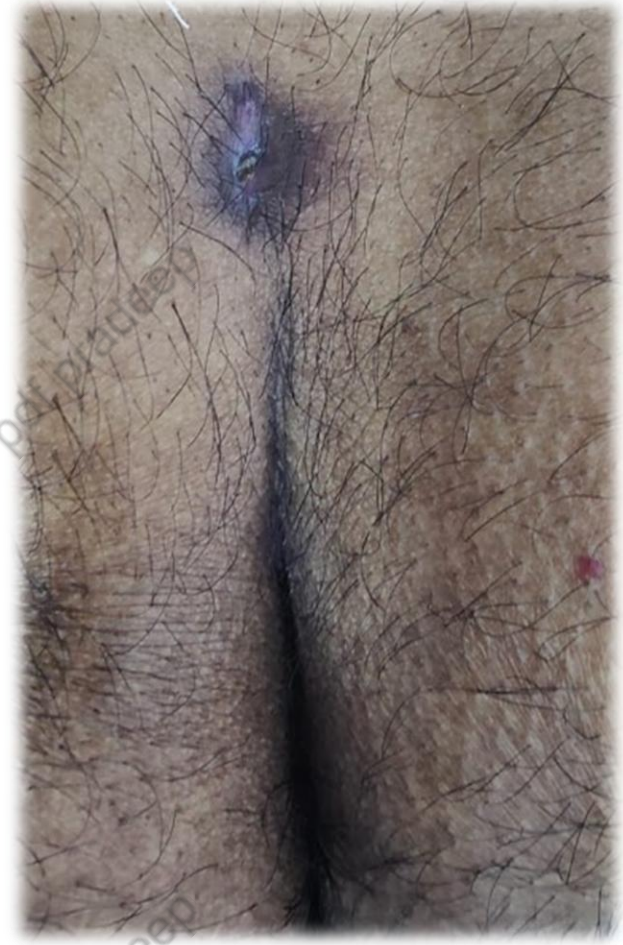
Release the retracted buttocks by releasing the sticking plaster & try to bring the buttocks together during laser ablation











PILONIDAL SINUS LASER ABLATION

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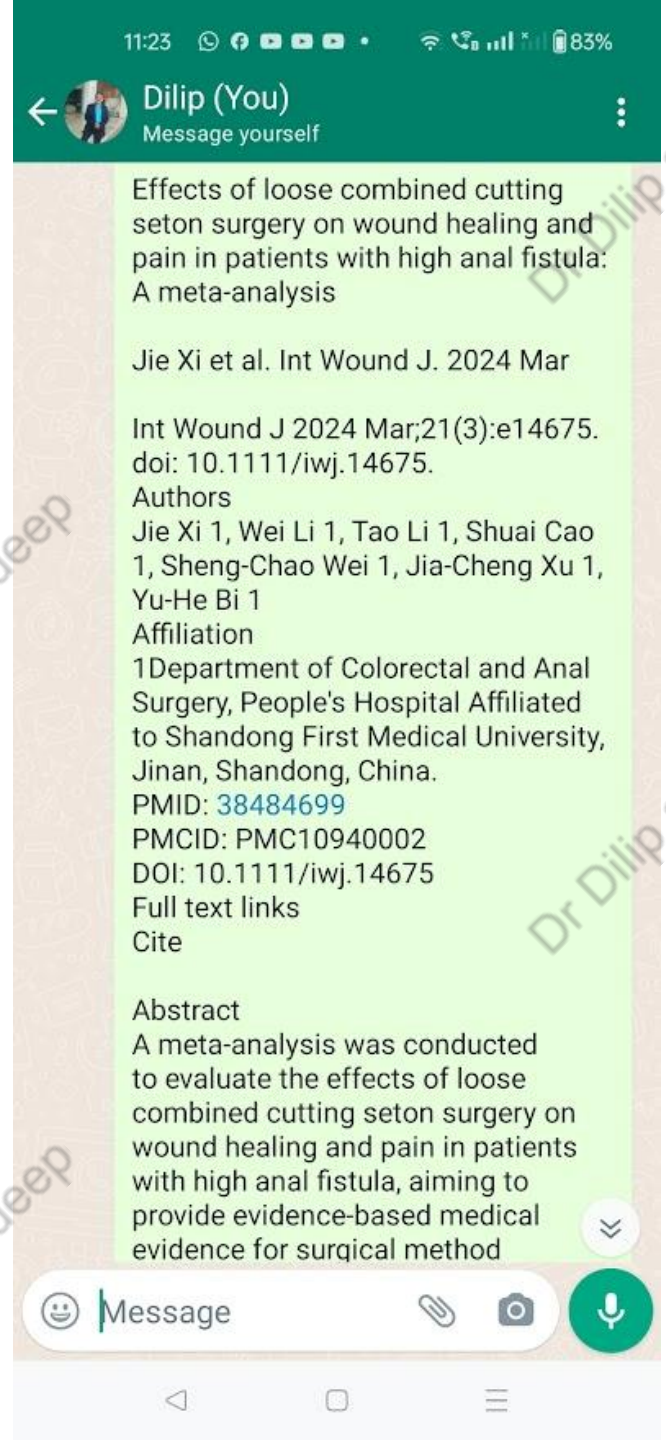

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Effects of loose combined cutting seton surgery on wound healing and pain in patients with high anal fistula: A meta-analysis

Jie Xi et al. Int Wound J. 2024 Mar

Int Wound J 2024 Mar;21(3):e14675. doi: 10.1111/iwj.14675.
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DOI: 10.1111/iwj.14675
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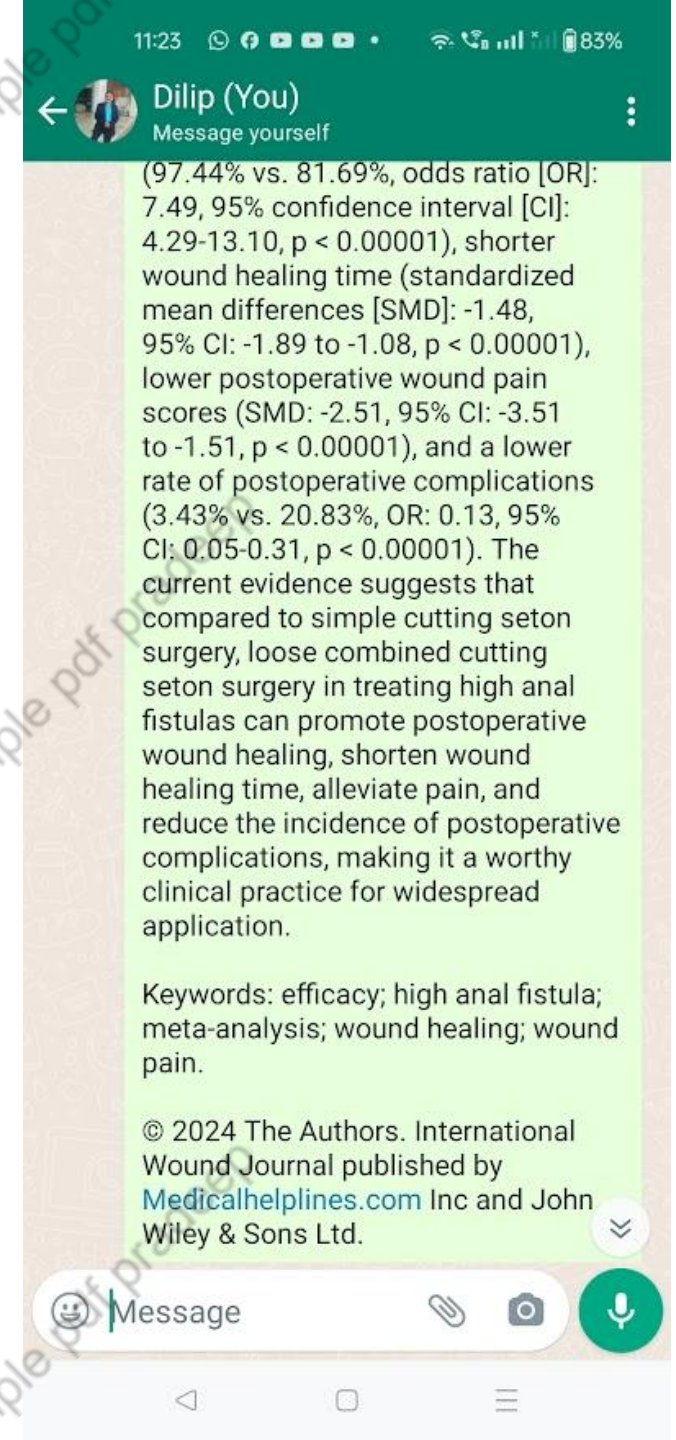
Abstract
A meta-analysis was conducted to evaluate the effects of loose combined cutting seton surgery on wound healing and pain in patients with high anal fistula, aiming to provide evidence-based medical evidence for surgical method

Message



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(97.44% vs. 81.69%, odds ratio [OR]: 7.49, 95% confidence interval [CI]: 4.29-13.10, p < 0.00001), shorter wound healing time (standardized mean differences [SMD]: -1.48, 95% CI: -1.89 to -1.08, p < 0.00001), lower postoperative wound pain scores (SMD: -2.51, 95% CI: -3.51 to -1.51, p < 0.00001), and a lower rate of postoperative complications (3.43% vs. 20.83%, OR: 0.13, 95% CI: 0.05-0.31, p < 0.00001). The current evidence suggests that compared to simple cutting seton surgery, loose combined cutting seton surgery in treating high anal fistulas can promote postoperative wound healing, shorten wound healing time, alleviate pain, and reduce the incidence of postoperative complications, making it a worthy clinical practice for widespread application.

Keywords: efficacy; high anal fistula; meta-analysis; wound healing; wound pain.

Message

THANK YOU

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Experience : 35 Years
Speciality : General & Laparoscopic Surgery

Thank You

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