

**European Society of Coloproctology (ESCP)
Monthly Topic (December 2017): Pilonidal Disease (PD)**

**Foreword by Professor Luigi Basso
Sapienza University of Rome:**

It gives me immense pleasure to introduce the December 2017 Monthly Topic of the ESCP on PD. I have prepared my own presentation and coordinated a number of scientific contributions on this subject from, literally, around the globe: USA, Australia, Italy, Israel, Sweden, etc. Indeed, PD, albeit benign, is a common and invalidating condition, which frequently affects very young patients and involves their families for quite some time. Often, these young patients, due to PD, see a surgeon for the very first time in their lives. There is no universal agreement regarding the best treatment / prevention methods. Probably, the multiplicity of surgical procedures, as usual, witnesses to the lack of one optimal treatment method, clearly superior to the others.

This "Pilonidal" "Monthly Topic" will deal with basic science of PD, and with different ways of treating it, from conservative methods to specialised surgical procedures. I personally favour minimally invasive procedures, which I have been performing for the last 20 years, since my days in Ireland. Therefore, the title of my own presentation is: "Pilonidal Disease: A Plea for Minimally Invasive Surgery: Less Is Better (... with exceptions)". Indeed, there are probably exceptions when flaps, rather than Minimally Invasive Surgery, should be taken into account, although the more one surgeon is familiar with the Minimally Invasive approach, the less he or she has to switch to more aggressive surgery. A few presentations of this ESCP "Pilonidal Month" will therefore deal with flaps. Classical surgical methods to treat PD (Open Surgery and Marsupialization, without primary closure, and Closed Surgery, with excision and primary closure) probably still have a role, although most PD dedicated surgeons favour either Minimally Invasive Surgery or flaps. As a matter of fact, traditional resective methods are still the most taught in medical schools, and the most practiced, worldwide, although, sometimes, they imply 2 or 3 months of postoperative painful dressings. Hopefully, over the next few years, a larger number of surgeons will develop a special and dedicated interest in PD. It should also be kept in mind that only a truly dedicated PD surgeon can "tailor" surgery to the individual patient, and not the patient to surgery.

Finally, I would like to dedicate the present Monthly Topic to two surgeons, who have been of paramount importance in my professional (and not only professional) life: Dr. John Bascom (1925-2013, from Eugene, Oregon, USA), whose teachings and research on PD have always been my "Northern Star", and Prof. W. Arthur Tanner (1948-2017, from Dublin, Ireland) master of surgery and of medical science.

"Pilonidal Disease (PD): A Plea for Minimally Invasive Surgery: Less Is Better (... with exceptions)".

Historical Background

PD was first scientifically reported by Herbert Mayo in 1833, as a "*sinus containing hair follicles located in the sacrococcygeal region of a female*".

[Mayo OH. "Observations on Injuries and Diseases of the Rectum". London: Burgess and Hill, 1833]

[Khanna A, Rombeau JL. "Pilonidal disease". Clin Colon Rectal Surg 2011; 24: 46-53.

Later (1847), Anderson wrote a letter to the Editor of the "Boston Medical Surgical Journal" (now NEJM) titled "*Hair Extracted from an Ulcer*". Anderson reported a 21-year-old male with a TB lesion on his back. After three weeks, the cavity was drained and cleaned and a "mesh" made of multiple 2-inch-long hair was extracted. As a result, the wound healed quickly.

[Anderson AW. "Hair extracted from an ulcer". Boston Med Surg J 1847; 36: 74-76].

[Marvin L, editor. Colon and Rectal Surgery. Corman, 2005: 616]

Seven years later (1854), Warren described three *similar cases* (first reported series in the history of PD).

[Warren JM. "Abscess, containing hair, on the nates". Am J Med Sci 1854; 28: 113].

Terminology Background

PD until 1880 was given many names. Widely used names were: sacral, coccygeal or sacrococcygeal infundibulum, dermoid and dermoid fistula, congenital dermal sinus and sacrococcygeal ectodermal sinus.

[Kooistra HP. "Pilonidal sinuses. Review of the literature and report of three hundred fifty cases". Am J Surg 1942; 55: 3-17]

In 1880, Hodges stated: "*I venture to give the name of pilo-nidal sinus to this rather singular lesion*" (from Latin language: "pilus" –hair- and "nidus" –nest-).

[Hodges RM. "Pilonidal sinus". Boston Med Surg J 1880; 103: 485-6].

[de Parades V, Bouchard D, Janier M, Berger A. "Pilonidal sinus disease". J Visc Surg 2013; 150: 237-47].

Considerations on Terminology

Different terms are used for PD: Pilonidal / Sacro-coccygeal Cyst / fistula / "Sinus Pilonidalis". However, this does not always consist of cyst(s), fistula(e), and is *not* even always in the natal cleft and sacrococcygeal area. Therefore, "Pilonidal Disease" (PD) probably is a more comprehensive & appropriate term.

Outline of condition & common features

Fistula(e) and/or cyst(s) often (but not only) in the sacro-coccygeal area & natal cleft, which develop(s) between skin and subcutaneous fat, only rarely reaching the muscular plane. Therefore, PD should probably be considered a dermatological disease, at least initially.

How PD develops

Congenital Theory > Followed up to the early '80s, now abandoned (*FACT: PD is exceedingly rare in pts =<12 yrs of age*)

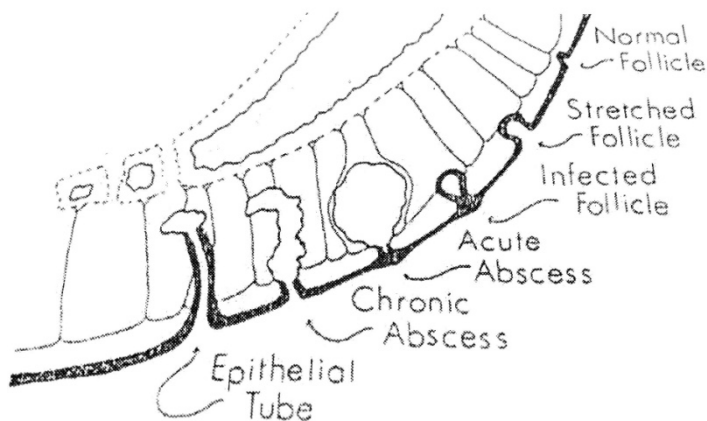
Bascom's Theory >According to Bascom, PD is an acquired dermatological condition

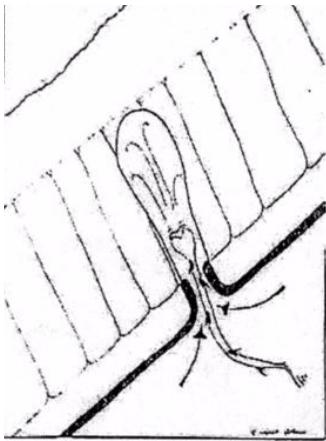
**Tribute must be given to:
John U. Bascom (Oregon, USA)
1925 - 2013**

Bascom J. Pilonidal disease: origin from follicles of hairs and results of follicle removal as treatment. Surgery 1980; 87: 567-72.

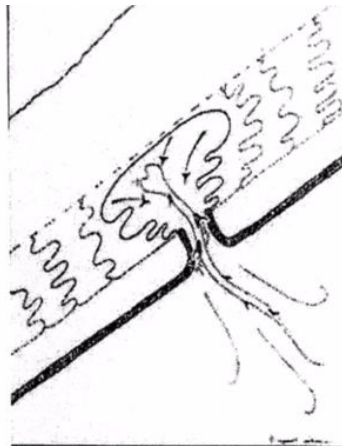
Aetiology and Pathogenesis

- ⊖ According to Bascom's widely accepted theory of 1980, PD originates from hair follicles of the natal cleft.
- ⊖ Keratin initially occludes a stretched follicle, which becomes inflamed and breaks into adjacent adipose tissue, thus forming a pilonidal micro-abscess.
- ⊖ If the micro-abscess drains towards the outside, the inflammation subsides, and the mouth of the follicle reopens. The remnant of the follicle and micro-abscess cavity form a draining pilonidal sinus.
- ⊖ Often, loose and vagrant hairs from the region gather in the natal cleft and are literally "sucked" into the sinus "pothole", especially in the sitting position, encouraged by contour of the area and by dynamic forces involved. Alternative origins of hair could be: scalp, back or gluteal region
- ⊖ Therefore, the sinus cavity fails to heal promptly, and epithelial cells keep moving into the sinus "well" from the edges of the follicle, thus forming a true epithelium-lined fistula.





Standing



Sitting

From: Bascom J. Pilonidal disease: origin from follicles of hairs and results of follicle removal as treatment. *Surgery* 1980; 87: 567-72.

PD: Multifactorial Aetiology

In addition, Karydakis in 1992 attributed the *hair insertion process* to *three main factors*:

1. the *"invader"* (loose hair);
2. the *"force"* (causes penetration);
3. the *"vulnerability"* of the skin (to the insertion of hair at the depth of the natal cleft)

Karydakis GE. "Easy and successful treatment of pilonidal sinus after explanation of its causative process". *Aust N Z J Surg* 1992; 62: 385–9.

PD: Epidemiology

- ☞ PD mainly affects young males aged from 15 to 30, its reported prevalence varying from 0.11% (among women at college in the US) to 8.8% (among Turkish soldiers).
- ☞ Bascom J. "Surgical treatment of pilonidal disease. Off-midline sutures improve outcomes compared with midline sutures". *BMJ* 2008; 336: 842-3.

Epidemiology & Risk / Predisposing Factors

- ☞ Gender: M > F (3:1)
- ☞ Age between 15 and 30 yrs
- ☞ Hirsutism in the natal cleft & buttocks
- ☞ Excess keratin in the hair follicle
- ☞ Sedentary lifestyle & obesity
- ☞ Contour of the natal cleft (deep, overhanging areas, dips,), impacted by weight and genetics
- ☞ Previous over-employment of steroids (e.g. asthma, etc.)
- ☞ Occupation ("jeep disease" of US Army)
- ☞ School activities
- ☞ Family history of PD
- ☞ Fetal development problems (Spina Bifida Occulta)
- ☞ Shape, size, strength and scaliness of patient's hair (head and body)
- ☞ Size of pores of skin over tailbone
- ☞ High degree of friction and pressure on tailbone (such as sitting improperly)

- ☞ Traumatic injury to tailbone (fall, kick, etc)
- ☞ Participation to high tailbone-impact activities (such as horseback riding, etc)
- ☞ Tendency towards blocked hair follicles (acne, boils, sebaceous cysts, etc)
- ☞ Tendency towards other skin problems (eczema, etc)
- ☞ Weak immune system
- ☞ Sufferers from Hidradenitis suppurativa (differential diagnosis)

Unusual reported locations of PD

- ☞ Penis, Clitoris, Scrotum
- ☞ Scalp, Chin, Nose, Face, Neck & Occiput (following trauma during shaving)
- ☞ Umbilicus (Navel), Groin, Suprapubic, Other sites of Abdominal wall
- ☞ Axilla, Sternum, Breast, Intermammary area
- ☞ Interdigital clefts (occupational: hairdresser “barber’s disease”, sheep shearer, dog groomer, butcher, milker, etc.)
- ☞ Healed Amputation Stump

Clinical Presentation

- ☞ Tender lump
- ☞ Redness
- ☞ Secretions / Discharge: serous/haematic/purulent/ foul smelling
- ☞ Possible fever and generalised malaise
- ☞ Fistulous track(s)
- ☞ Recurring infections and/or abscesses
- ☞ One or more central primary pits (*sometimes, these can be only detected after careful observation*)

Malignant degeneration (anecdotal)

- ☞ Borges VF, et al. “Clinicopathologic characterization of squamous-cell carcinoma arising from pilonidal disease in association with condylomata acuminatum in HIV-infected patients: report of two cases”. Dis Colon Rectum 2001; 44: 1873-7.

Davis KA, et al. “Malignant degeneration of pilonidal cysts”. Am Surg 1994; 60:200-4.

- ☞ Malignant degeneration of PD is rare. Davis et al. presented three new cases with a review of the worlds previously published 41 cases. Of the total 44 cases, 36 were squamous cell carcinoma. All cases occurred in long-standing PD, with the mean duration of PD being 23 years. Five of six patients presenting with inguinal metastases died within 16 months.
- ☞ Four patients received adjuvant radiotherapy, one received adjuvant chemotherapy, and one patient received both adjuvant treatments. Six patients with recurrence received potentially curative resection, with three patients surviving >10 years with no evidence of disease. Davis et al. recommend adjuvant chemo- and radiotherapy as a new modality treatment to decrease local recurrence rate.

Evaluation & Diagnosis

- ☞ Physical examination [inspection, careful observation, palpation, fistulous track(s) detectable as a “violin string” pulling skin apart] + proctoscopy, to rule out fistula-in-ano and other conditions (e.g. Crohn’s disease, hidradenitis suppurativa, infectious conditions such as TB, syphilis + STDs, actinomycosis, etc.)
- ☞ Diagnostic Imaging only for selected recurrent / complex cases:
- ☞ Ultrasound of sacrococcygeal area (linear probe)

MRI

Therapeutical Challenges

Although, really, “just” a “dermatological condition” (at least, at the beginning) PD implies a number of problems related to:

1. High rates of true recurrent disease and/or of persistence and/or of new localization of PD in the same patient.
2. Possible choice (also thanks to “Dr. Google”) among a number of surgical options, many requiring long recovery (easily, up to 3 months) with painful dressings. Yet, traditional surgery is burdened by high recurrence rates, in some series even higher than minimally-invasive surgical techniques.
3. Social burden: Days off work / school / college / university.

Guidelines

American Society of Colon & Rectal Surgeons (ASCRS) Guidelines (2013) [Steele SR, Perry BW, Mills S, Buie WD. “Practice parameters for the management of PD”. *Dis Colon Rectum* 2013; 56: 1021–7]

“Società Italiana di Chirurgia ColoRettale” (SICCR) Guidelines (2015) [Segre D, Pozzo M, Perinotti R, Roche B. “The treatment of PD: guidelines of the Italian Society of Colorectal Surgery”. *Tech Coloproctol*, 2015; 19: 607–13]

- ☞ SICCR Guidelines (2015) really are inspired by ASCRS GL [Dis Colon Rectum 2013] updated by:
 1. review of the literature
 2. search of MEDLINE, PubMed, Embase and Cochrane Database, from January 2012 to May 2015, with keywords: “pilonidal disease”, “pilonidal sinus”, “pilonidal cyst”, “pilonidal abscess”, “recurrence”, “gluteal cleft”, “natal cleft”.
- ☞ Grades of recommendation adapted from those published in “Chest” in 2006, by Guyatt et al.

Conservative Treatment

This includes:

- ☞ Depilation (temporary, questioned by German authors such as Petersen S et al)
- ☞ Epilation (postop, permanent, includes hair follicle: LASER, etc)
- ☞ Hair extraction (from pits)
- ☞ Perineal hygiene
- ☞ Phenol & other chemical/physical agents
- ☞ Antibiotics
- ☞ Reduction / Correction of sitting down posture

Armstrong JH, et al. “Pilonidal Sinus Disease. The Conservative Approach”. *Arch Surg* 1994; 129: 914-8.
Study on 229 soldiers @ Montcrief Army Community Hospital, Ft Jackson, SC, USA

- ☞ **Methods:** “Meticulous hair control with weekly 5-cm strip shave within the natal cleft from the anus to the presacrum until healing occurred, with further weekly shaving for recurrence, avoidance of certain exercises (e.g. sit-ups and leg lifts)”.
- ☞ **Results:** “Complete healing over 83 occupied-bed days was demonstrated in 101 consecutive cases managed during 1 year with the conservative method, whereas slower healing over 4,760 occupied-bed days was observed in 229 patients undergoing 240 operative procedures during the preceding 2 years. With application of conservative treatment over 17 years, only 23 excisional operations were performed”.
- ☞ **Conclusions:** “Conservative therapy effectively controls pilonidal sinus disease in the nonoperative outpatient setting while promoting near-normal work status and is preferred over excisional operations”.

Conservative Approach - Depilation & Hygiene

- ⊕ No clear / conflicting evidence
- ⊕ Yet, "the rationale for hair removal in PD is compelling"
- ⊕ Questioned by some German authors (Petersen S, et al: not only pointless, but even harmful)

- ⊕ Petersen S, et al. "Long-Term Effects of Postoperative Razor Epilation in Pilonidal Sinus Disease". Dis Colon Rectum 2009; 52:131-4.
- ⊕ 1,960 PD pts operated 1980-96 (3 hospitals). Recurrence in 34/113 pts (30.1%) after postop depilation vs 77/391 (19.7%) ctrls (P = 0.01).
- ⊕ "Razor hair removal increases the rate of LT postop PD surgery and should not be recommended. Other epilation techniques (e.g. LASER) should be investigated in appropriate studies".

- ⊕ *NOTE: here the term "depilation" instead of "epilation" should have been used, as "epilation" in the English literature usually refers to the definitive treatment.*

Conservative Approach - Postop Epilation (permanent)

- ⊕ Badawy EA, et al. "Effect of hair removal by Nd YAG laser on recurrence of pilonidal sinus". J Eur Acad Dermatol Venereol 2009; 23: 883-6.
- ⊕ 25 PD pts (100% M). 15 pts postop LASER treatment (Nd: YAG) 10 ctrls. None of LASER pts required further surgery. 7 / 10 ctrls (70%) developed recurrent PD.
- ⊕ "LASER epilation can prevent recurrent PD".

- ⊕ Oram Y, et al. "Evaluation of 60 patients with pilonidal sinus treated with LASER epilation after surgery". Dermatol Surg 2010; 36:88-91.
- ⊕ 60 pts operated for PD were postop treated with Alexandrite LASER (1999 -2007). Overall recurrence rate was 13.3%, after a mean FU ~ 5 yrs. 75% of recurrences were detected after FU period of 5 to 9 yrs. 50% of recurrences before LASER epilation.
- ⊕ "LASER hair removal after surgical interventions in PD decreases the risk of recurrence over the long term".

Conservative Approach - Role of Antibiotics

- ⊕ Antibiotics have a limited role in both chronic and acute PD.
- ⊕ This applies to their pre-operative, peri-operative and post-operative employment.
- ⊕ No improvement / cure / lower recurrences can be achieved by the employment of antibiotics, yet these are advisable in selected pts (immunodeficient, cellulitis, systemic conditions, etc).

Conservative Approach - Phenol

- ⊕ Kayaalp C, et al. "Review of phenol treatment in sacrococcygeal pilonidal disease". Tech Coloproctol 2009; 13: 189-93.
- ⊕ Calikoglu I, et al. "Phenol Injection Versus Excision With Open Healing in Pilonidal Disease: A Prospective Randomized Trial". Dis Colon Rectum 2017 ; 60 : 161-9.

- ⊕ Employment of phenol in PD really dates back to 1964:
- ⊕ [Maurice BA, et al. "A conservative treatment of pilonidal sinus". Br J Surg 1964; 51: 510-2].
- ⊕ Success rate looks better particularly in cases that have 1-3 sinus orifices and comparable with the surgical methods.
- ⊕ Better results are achieved when crystallized phenol is used compared to 80% liquid phenol.

- ⌘ Though healing time of the wound is long, the procedure apparently lessens the time off work.
- ⌘ Only weak evidence due to lack of randomized studies.
- ⌘ There is also need for longer-term follow-up.

Conservative Approach - Other Chemical / Physical Agents (some of these are only of historical and/or anecdotal relevance, with poor outcomes)

- ⌘ Fibrin Glue
- ⌘ Thrombin Gelatin Matrix
- ⌘ Kshar Sutra (Ayurvedic)
- ⌘ Silver nitrate
- ⌘ Alcohol 80% to 90%
- ⌘ Collagenase
- ⌘ Thorium X
- ⌘ Mercuric Chloride

Conclusive Treatment of PD, though, in most cases is represented by surgery:

IDEAL SURGICAL TECHNIQUE: JUST WISHFUL THINKING?

- ⌘ Low Recurrence Rate (<10%, 0% Does Not Exist)
- ⌘ Low Invasivity
 - No or Little Pain
 - Quick Healing
 - Loss of Only a Few Study/Working Days
 - Low Cosmetic Impact
 - Low Psychological Impact
 - Low Cost
- ⌘ Minimally Invasive Surgery (Mis) Probably Best Matches the Required “Ideal” Surgical Technique Items / Criteria Compared To Traditional Surgery
- ⌘ The multiplicity of surgical procedures probably testifies to the lack of one optimal treatment method: No “Holy Grail” for PD Surgery

1. Open surgery excision without primary closure
2. Marsupialization
3. Closed surgery excision with primary closure
4. Plasties with various flaps complex / recurrent pd
5. Minimally invasive surgery (mis):
 - ⌘ Lord-millar (1965),
 - ⌘ Bascom (1980),
 - ⌘ Sinotomy (2007),
 - ⌘ Gips (2008),
 - ⌘ Sinusectomy (2011),
 - ⌘ Epsit (2014),
 - ⌘ Carottage with cystectomy + fistulectomy

THEORETICAL PROS & CONS OF TRADITIONAL SURGERY

PROS

- ⌘ “radical” procedure (in theory)
- ⌘ Low recurrence rates

CONS

- ⊞ Invasive operation
- ⊞ Significant cosmetic burden (especially in young patients)
- ⊞ Psychological impact
- ⊞ Severe postop pain
- ⊞ Recovery >>> compared to mis (up to 3 months)
- ⊞ Several dressings, with loss of working/study days
- ⊞ Significantly high dehiscence rate
- ⊞ Financial burden compared to mis
- ⊞ Operating times >>> compared to mis

1 & 2: Excision without primary closure: Open Surgery & Marsupialization

Recurrent pilonidal disease less frequent after healing by secondary intention.
However, wounds can easily take up to 10 weeks to heal, with painful dressings in between.

3: Excision with primary closure

Closed Surgery

Faster healing rates and a more rapid return to work, at the expense of increased recurrence rates.

Non-healing Surgical Wounds

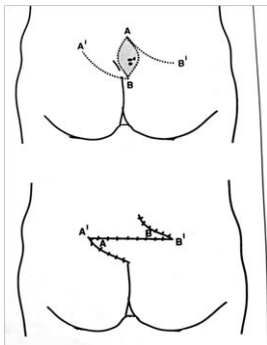
- ⊞ *Agents promoting wound healing*: topical applications of hydrogel, silver, honey, zinc, selected foam materials, negative pressure wound therapy, platelet rich plasma, and plant extracts.
- ⊞ *Agents beneficial in reducing bacterial burden*: topical treatment using polyhexamethylene biguanide and silver.
- ⊞ *Agents with weak evidence* for true beneficial influence on wound related pain: silver, honey, and hydrocolloid dressings.

Topical Negative Pressure (TNP or VAAC or NPWT)

- ⊞ TNP after surgical excision of pilonidal sinus disease is feasible.
- ⊞ TNP is beneficial especially in the first 2 weeks after surgical excision, with a higher wound healing rate.
- ⊞ TNP yields no significant benefit with respect to time to complete wound healing and time to resume daily life activities.
Ulas Biter L, et al. The Use of Negative-Pressure Wound Therapy in Pilonidal Sinus Disease: A Randomized Controlled Trial Comparing Negative-Pressure Wound Therapy Versus Standard Open Wound Care After Surgical Excision.
Dis Colon Rectum 2014 ; 57 : 1406–11.

4: PLASTIES / FLAPS (COMPLEX / RECURRENT PD):

- ☞ Z-plasty*



- ☞ Bascom's Cleft Lift*
- ☞ Rhomboid*
- ☞ Karydakis*
- ☞ Limberg*
- ☞ Gluteus Maximus
- ☞ Bilateral Gluteal Advancement
- ☞ Gluteal V-Y
- ☞ Superior Gluteal Artery Perforator Flap
- ☞ Crossed Triangular Flaps
- ☞ Modified Dufourmental flap with superior pedicle
- * *most common flaps*

5: MINIMALLY INVASIVE SURGERY

- ☞ Lord-Millar (1965)
- ☞ Bascom (1980)
- ☞ Sinotomy (2007)
- ☞ Gips (2008)
- ☞ Sinusectomy (2011)
- ☞ E.P.Si.T. (2014)
- ☞ Carottage With Cystectomy + Fistulectomy (Bascom and Gips combined)

MINIMALLY INVASIVE SURGERY: Lord PH, Millar DM.

"Pilonidal sinus: a simple treatment". Br J Surg 1965; 52:298–300.

- ☞ Minimally invasive surgery approach.
- ☞ Little elliptical excisions of the pilonidal central pits + debridement of the underlying abscess cavity.
- ☞ Employment of little brushes to remove hair and to also clean the lateral tracks.

MINIMALLY INVASIVE SURGERY: Bascom J.

- ☞ *"Wide excision of blocks of fat down to periosteum, an outmoded treatment, now seems equivalent to treating a pimple on the chin by cutting off the patient's head!"*
- ☞ Two "mantras":
- ☞ "Pick all pits!"
- ☞ "Stay out of the Ditch!" [e.g. the natal cleft]
- ☞ Bascom J, Basso L. "Pilonidals: Distilled wisdom". Società Italiana di Chirurgia

- ☰ ColoRettale 2010.
- ☰ Available from: http://www.colonproctologia.com/wp-content/themes/wp-fresh-italiano/images/Bascom_Basso_Distilled_Wisdom.pdf

MINIMALLY INVASIVE SURGERY: Gips M et al.

“Minimal surgery for pilonidal disease using trephines: description of a new technique and long-term outcomes in 1,358 patients”.

Dis Colon Rectum 2008; 51: 1656-62.

M. Gips in 2008 modified J. Bascom’s technique of 1980, introducing the employment of biopsy *punches* instead of the scalpel in order to perform central little rice grain incisions...

MINIMALLY INVASIVE SURGERY: Carottage procedure (personal modification of both Bascom and Gips procedure)

“Fistulectomy” & “Cystectomy” by means of:

- ☰ Biopsy punches
- ☰ Scissors
- ☰ Scalpel
- ☰ Volkmann’s spoon
- ☰ Swabs

Prep & Anaesthesia

- ☰ Perfect depilation (natal cleft)
- ☰ LA: Carbocaine 2% + Bicarbonate (8-15 cc)
- ☰ Midazolam + Fentanest iv: only in certain cases (depending on compliance of pts + advanced disease)
- ☰ Diprivan, sometimes (Propofol) iv
- ☰ Antibiotic

What to expect after carottage surgery?

- ☰ Compressing dressing for 24-48 hrs
- ☰ Lying supine on wound for 24-48 hrs
- ☰ In case of bleeding lying supine on hard surface (hard floor) for at least 60’
- ☰ After removal of compressing dressing showers (tap water) twice daily on wounds for at least 3 minutes
- ☰ Expect some discharge from small wounds for 15-20 days
- ☰ Resume activities after 2-3 days, reduce squatting or sitting for 15 days
- ☰ Light Sports: Jogging, Walking, Tennis, etc. may be resumed 3 – 4 days after surgery
- ☰ Heavy Sports: Cycling, Rowing, Horse-riding, etc. may be resumed >30 days after surgery
- ☰ Swimming (pool): can be resumed after small surgical wounds are closed
- ☰ Swimming (sea) can be resumed 2-3 days after surgery

Possibility of “Recurrence”: Different types of “recurrences”

- ☰ True Recurrence? Late (> 3 years)
- ☰ Persistence of Disease (e.g. “failure” of technique)? Early (< 3 years)
- ☰ New Localization? Disease at new location of natal cleft

Recurrence, however is an:

- ☞ "Occurrence" embedded in the definition & physiopathology of Pilonidal Disease
- ☞ "Occurrence" so common to be explicitly included in the healthcare private insurance listing
- ☞ "Occurrence" and NOT complication: may happen after any technique, even after wide resections and months of painful dressings, with acceptable rates ranging around 10%
- ☞ "Zero" recurrence exists only in the words of charlatans and in the dreams of the foolish.

Carottage vs E.P.Si.T.

- ☞ Carottage:
- ☞ *Implies use of trephines or of "biopsy punches" (disposable @ ~ EUR 3 each), scalpel, scissors, Volkmann's spoon to perform cystectomy and fistulectomy*
- ☞ E.P.Si.T.

- ☞ Meinero P et al. "Endoscopic pilonidal sinus treatment (E.P.Si.T.)". *Tech Coloproctol* 2014; 18: 389-92.
- ☞ *Implies use of fistuloscope + electrods + dedicated scissors etc.*
- ☞ *Cost of instrumentation: > EUR 6,000 + electrodes*

MINIMALLY INVASIVE SURGERY

It should be advocated as it implies:

- 🌐 Low Recurrence Rate
- 🌐 Low Operative Times
- 🌐 Low Recovery Time
- 🌐 Low Cosmetic Impact
- 🌐 Low Pain
- 🌐 Low Social Impact (Lost Days of Work/Study)
- 🌐 Low Costs

ADAPTABILITY, FLEXIBILITY, PROFESSIONALISM

In any case, in order to optimise surgical cure of PD and always bearing in mind the sound principles of "minimally invasive surgery" it should be considered that:

- ☞ The same identical procedure cannot be offered to patients suffering from completely different PD
- ☞ This flexibility can only be achieved thanks to experience deriving from many years of PD dedicated surgery
- ☞ In case of PD, the time honoured "*mantra*" "great surgeon, great incision..." really does NOT seem to apply, on the contrary, we should probably say "less is better"
- ☞ The dedicated PD surgeon should always "tailor" surgery to the individual patient and not patient to surgery, exactly what a good tailor would do when sewing a good hand-made suit...

Luigi Basso

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