Pilonidal disease management

Commentary G vd Merwe
Discussion points

• Embryology
• Outcome and morbidity of surgical management
• Wound care adjuncts
• Procedures less invasive than excision and curettage
• Reconstructive options and outcomes
• Conclusion
Embryology

STEPHEN DANA WEEDER; PILONIDAL CYST, ITS ETIOLOGY AND TREATMENT
Ann Surg 1933, 385-393

- Pilonidal sinus initially believed to be of embryonal origin
- Basis for this is epithelial cells found in the sinus, thus from ectodermal layer
- However no teeth or nails as in the case with teratomas
- Neural crests formed around day 14, continues to fuse and form the neural tube in a craniocaudal fashion
Embryology

- The notocord is invaginated into a position just ventral to the neural tube (endodermal origin)
- The mesothelium forms the sclerotome which form the vertebra. At the same time the notocord degenerates and disappears.
- The vertebra fuses in a craniocaudal fashion over the dorsum of the neural tube extending to the tip of the coccyx and is attached there with the filum terminale even in adults
Embryology

• The medullary canal then starts fusing at the coccyx and extends cranially and caudally
• Mallory examined 6 fetuses finding a epithelial lined canal at or near the coccyx, sometimes communicating or near the skin without any hair follicles
• The conclusion then is that the non closure of the medullary canal is the source of the pilonidal sinus, and excision of the coccyx is advocated in recurrent cases
Current opinion

- No embryological origin distinguish from dermoid inclusion cysts
- Sinuses to neural canal can extend to the dura, these are rare and then more commonly in the lumbar area
- At puberty pilosebaceous glands are stimulated and the hair follicle is distended by keratin and develops secondary folliculitis
- Traumatic injury in mid line, friction, obesity and poor hygiene contribute to the problem.
- Infection and softening of the skin.
- This causes a pilonidal abscess, rupturing to the subcutaneous tissue, forming a sinus tract becoming secondarily epithelialized with cuboidal epithelium.
- Hair then is able to gain access to the sinus
- This the cause a foreign body reaction with suppuration and secondary sinus formation
Current opinion

• Further supported by
  – Common on hands of barbers
  – Case reports of pilonidal cysts on chin, clitoris and other areas
Morbidity of the disease

- Primary closure: 30% recurrence with mean interval 2.7 years
- Secondary closure: 17% recurrence with mean interval 1.8 years
- Prolonged time for wound healing with secondary closure, in the order of 40 days
- Therefore attempts focused on minimizing morbidity and early return to normal activity
VAC- dressing


• Case reports in literature
• Open management of the wound with or without split thickness skin graft
• No comparison wrt length of wound healing
• Case reports show wound healing in 5 weeks
• No significant improvement compared to other modalities
Conservative primary management: Shaving and hygiene


- Military hospital setting, basic trainees only allowed to be discharged when ready for duty
- Comparison 229 patients managed surgically and had a total bed occupation of 4760 days for 240 excisions (20.8 days average per patient)
Conservative primary management: Shaving and hygiene

• 101 patients managed with drainage of abscesses, hair removal from pits, meticulous perineal hygiene, weekly shaves from anus to the presacral area and avoidance of sit-ups and leg lift exercises. Total bed occupation of 83 days. (0.82 days per patient)

• With practice of this conservative approach only 23 excisions were demanded in 17 years at centre
Post operative razor de-epilation

S Petersen; K Wietelmann; T Evers. Long-Term Effects of Postoperative Razor Epilation in Pilonidal Sinus Disease. Dis Colon Rectum 2009; 52: 131-134

- 504 patients with pilonidal disease selective post operatively, all advised to de-epilate
- At follow up 113 followed advice.
- 30.1% recurrence in de-epilation group and 19.7% in the non-de-epilation group
- Conclusion Razor de-epilation not recommended, suggest electrolysis/laser de-epilation
Fibrin glue


- Pilot study of 6 patients with chronic pilonidal disease
- Curretage of the tracts and sinuses and injection of the fibrin glue
- At 1 year 1 recurrence (16.6%)
Crystalized phenol injection


- Recurrent pilonidal disease
- 36 patients on outpatient basis
- Skin shaved
- Tracts dilated to 3mm and hair and debris removed
- Anus and surrounding skin protected
- Crystalized phenol applied and left for 2 minutes, then expressed
- Follow up weekly
- Results: Mean of 3.7 applications, healing in 48 days. In 54 month follow up 13.9% recurrence, retreated with a second course
Minimal surgery with trephines


- 1358 patients
- Trephines used to debride pits and sinusses and clear debris
- Recurrence at 1, 5 and 10 yrs 6.5, 13.2 and 16.2%
- Mean time to recurrence 2.7 years
Minimal Surgery with Trephines
Minimal surgery with trephines
Cleft lift procedure/ Kyridakis procedure


- Technique for excision
- Kyridakis excised up to the sacrum, modified by Bascom & Bascom. Excision only up to sinus. Secondary sinuses curettaged and cleared with gauze
- Kyridakis had less than 1% recurrence with this procedure
- Mean hospital stay is .76 days, Healing 11.1 days, Return to work in 17.7 days
Cleft lift procedure/ Kyridakis procedure
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Cleft lift procedure/ Kyridakis procedure
Z- Plasty vs conventional treatment

MS Fazeli; MG Adel; AH Lebaschi. Comparison of Outcomes in Z-Plasty and Delayed Healing by Secondary Intention of the Wound After Excision of the Sacral Pilonidal Sinus: Results of a Randomized, Clinical Trial. Dis Colon Rectum 2006; 49: 1831–1836

- RCT 72 patients each arm
- Mean follow up for both arms 22 months
- Hospital stay conventional treatment 1.76 (+/- 0.75), Z-plasty 2.86 (+/- 0.73 days)
- Wound healing Conventional surgery 41 days, Z-plasty 15.4 days
- Return to normal activity 17.5 days for conventional vs 11.9 days for Z-plasty
- One recurrence in each arm.
Dufourmentel flap

E Lieto; P Castellano; M Pinto. Dufourmentel Rhomboid Flap in the Radical Treatment of Primary and Recurrent Sacrococcygeal Pilonidal Disease. Dis Colon Rectum 2010; 53: 1061–1068

- 310 patients 24 asymptomatic and 55 recurrent disease
- Surgery 40 minutes mean
- No flap necrosis
- Mean hospital stay 1 day (1- 11)
- Mean return to work 7 days (5- 30)
- Minimal pain (visual analogue scale)
- 10.6% wound complications, managed conservatively in all but 2 (0.6%) which was resutured
- Recurrence 7 (2.3%) of patients, all within 25 months. No further recurrence at 5, 10 and 16 yrs
Dufourmentel flap
Dufourmentel flap
V Y advancement flaps

• 43 patients
• 16.3% wound complications (managed conservatively), no breakdown
• Mean hospital stay 3 (2- 5) days
• Return to work in mean 17 (13- 25) days
• Recurrence in 1 patient 2.3%
VY advancement flap
VY advancement flap
VY advancement flap
VY rotation flap

VY rotation flap
S- GAP flap

Y Bas; H Canbaz; A Aksoy. Reconstruction of Extensive Pilonidal Sinus Defects With the Use of S-GAP Flaps. *Ann Plast Surg* 2008;61: 197–200

- Superior gluteal artery perforator based flap
S- GAP flap
S- GAP flap
Lumbar adipofascial turnover flap


- Excision of pilonidal cyst up to lumbosacral fascia
- Undermining of the kin in the intermediate subcutaneous tissue
- Flap developed in 2 (length) to 1 (base) ratio
- When desired length obtained, cut up to the lumbar fascia
- Flap then elevated of the mm. erector spinae and turned over into soft tissue defect
- Skin sutured over this
Results: Lumbar adipofascial turnover flap

- 10 patients
- Mean hospital stay of 4 days
- Mean time of work 15 days
- Acceptable cosmesis
- No recurrence
Lumbar adipofascial turnover flap
Conclusion

• Primary disease with abscess formation; Treat as abscess with I&D and debride the sinus. Cool down so as to manage as chronic sinus with local hygiene.

• Chronic disease best treated by some form of reconstruction.

• Principles of reconstruction:
  – Excision of sinus (Coccyx and periosteum best left alone).
  – Closure off the midline
  – Elevation of natal cleft

• Disease *burns out* after the age of 40 yrs