

Diagnosis and treatment of a rectal-cutaneous fistula: a rare complication of coccygectomy

Eyal Behrbalk · Ofir Uri · Charles Maxwell-Armstrong ·
Nasir A. Quraishi

Received: 22 August 2013 / Revised: 31 August 2014 / Accepted: 6 September 2014
© Springer-Verlag Berlin Heidelberg 2014

Abstract



Background Coccygectomy may be indicated for the treatment of debilitating coccygodynia unresponsive to non-operative treatment. Perineal contamination and post-operative wound infection following coccygectomy remains a major concern. We present a rare post-coccygectomy complication of rectal-cutaneous fistula. To our knowledge no such case has been previously described.

Case presentation A 24-year-old woman presented with recurrent wound infections 1 year after coccygectomy at another institution, which persisted despite two surgical

debridements and antibiotic treatment. Wound cultures showed non-specific poly-microbial bacterial growth. MRI scan of the spine and pelvis revealed a sinus tract and soft tissue edema with no evidence of abscess or osteomyelitis. Methylene blue injection to the sinus tract confirmed the presence of a rectal-cutaneous fistula. The patient underwent further debridement, fistulectomy and synchronous defunctioning colostomy and resection of the involved colon segment. The wound healed by secondary intention with complete resolution of the infection. Re-anastomosis and closure of the colostomy was performed 6 months later. At 2-year follow-up, the patient had no signs of infection and her initial coccygeal symptoms had improved.

Conclusion Postoperative infection following coccygectomy remains a major concern. A discharging sinus at the surgical site may suggest the presence of a rectal-cutaneous fistula, which requires a combined approach of spinal and colorectal surgeons. Methylene blue injection to the sinus tract may facilitate the diagnosis of a rectal-cutaneous fistula.

Keywords Coccygectomy · Rectal-cutaneous fistula · Methylene blue · Perianal sinus · Postoperative infection

Case history

A 24-year-old woman presented with continuing wound problems 1 year after coccygectomy performed elsewhere. That operation had been complicated by recurrent wound infections which persisted despite two further surgical explorations and debridement. Wound cultures had shown non-specific poly-microbial bacterial growth.

She had previously fractured her coccyx resulting in chronic pain unresponsive to non-operative treatment that

E. Behrbalk · O. Uri · N. A. Quraishi (✉)
Centre for Spinal Studies and Surgery, Queens Medical Centre
Campus of Nottingham University Hospitals NHS Trust, Derby
Road, Nottingham NG7 2UH, UK
e-mail: nasquraishi@hotmail.com

C. Maxwell-Armstrong
Department of General Surgery, Queens Medical Centre Campus
of Nottingham University Hospitals NHS Trust, Derby Road,
Nottingham NG7 2UH, UK

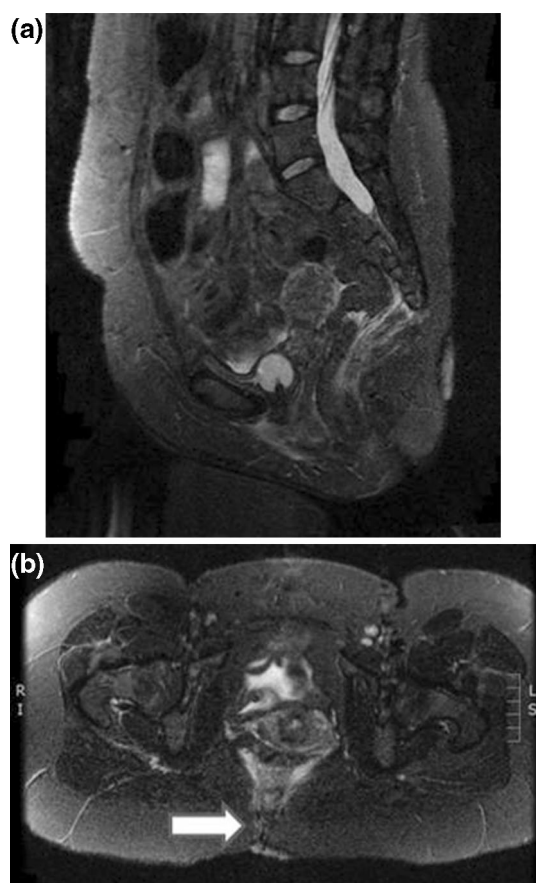


Fig. 1 A sagittal (a) and transverse (b) MRI views of the spine and pelvis taken at presentation, showing a sinus track and soft tissue edema

justified coccygectomy [1, 2]. There was no history of diabetes, smoking or immunosuppression. Her bowel and bladder function was normal and there were no abnormal neurological signs.

Physical examination revealed a 1.5-cm sinus arising in the surgical scar. She had a mildly raised C-reactive-protein level. A MRI scan of the spine and pelvis revealed a sinus track, soft tissue edema, a very small fluid collection and no evidence of osteomyelitis (Fig. 1). Further debridement with exploration of the sinus tract was planned.

Surgical procedure

The procedure was performed under general anesthesia in the prone position with the hips and knees flexed (using a Wilson's frame). The buttocks were separated and secured laterally to facilitate exposure. The sinus borders were marked by injecting methylene blue dye in 1 ml increments into the sinus tract prior to surgical debridement. The use of methylene blue for this purpose was found to be

beneficial in treating infected sinuses in the perianal region [3, 4]. Shortly after injecting the sinus tract the blue dye started to drip out from the patient's anus (staining the swab we had placed there with blue color), indicating the presence of a rectal-cutaneous fistula. We were able to follow the methylene blue dye and perform a thorough resection of the fistula. Minimal diathermy was used (bipolar cautery was used for hemostasis) to avoid obscuring the dye traces and causing further tissue necrosis. A staged defunctioning colostomy and resection of the involved segment of the rectum was performed by a colorectal surgeon. The wound was allowed to heal by secondary intention.

Outcome

The patient was discharged from the hospital after 4 weeks of intravenous antibiotics and normalization of her inflammatory markers. Re-anastomosis of the involved rectal segment with closure of the colostomy was performed 6 months later, after repeated physical examination and laboratory findings confirmed complete resolution of the infection and no recurrence of the rectal-cutaneous fistula. At 2-year follow-up, she had no signs of localized infection, her initial coccygeal symptoms had improved and she was discharged from the spinal service.

Rationale for treatment and evidence-based literature

Complications following coccygectomy have been reported in 10–30 % of cases in most series and include surgical wound infection, hematoma, wound dehiscence and delayed wound healing [1, 5, 6]. Formation of a rectal-cutaneous fistula, although well described in patients with inflammatory bowel disease [7], has not been reported as a complication of coccygectomy to our knowledge.

The persistent infection in our patient despite two surgical debridements and long-term antibiotics suggests that the rectal-cutaneous fistula developed after the initial coccygectomy and was not diagnosed neither by preoperative MRI scan nor by surgical exploration. Injecting methylene blue into the sinus tract enabled us to make the correct diagnosis of rectal-cutaneous fistula and to treat the patient appropriately with complete resolution of the infection.

The use of methylene blue for sinuses and fistulae border marking is uncommon in orthopedic surgery but is extensively used in other surgical disciplines [3, 4, 8–10]. It is a non-expensive and reliable method for indentifying the borders of sinus tracts and fistulae and should be considered when treating post-coccygectomy infections.

Conclusion

Postoperative infection following coccygectomy remains a major concern. A discharging sinus at the surgical site may suggest the presence of a rectal-cutaneous fistula, which requires a combined approach of spinal and colorectal surgeons. Methylene blue injection to the sinus tract may facilitate the diagnosis of this rare complication.

Conflict of interest None.

References

1. Fogel GR, Cunningham PY, Esses SI (2004) Coccygodynia: evaluation and management. *J Am Acad Orthop Surg* 12(1):49–54
2. Nathan S, Fisher B, Roberts C (2010) Coccydynia: a review of pathoanatomy, aetiology, treatment and outcome. *J Bone Jt Surg Br* 92(12):1622–1627
3. Doll D, Novotny A, Rothe R et al (2008) Methylene blue halves the long-term recurrence rate in acute pilonidal sinus disease. *Int J Colorectal Dis* 23(2):181–187
4. Gonzalez-Ruiz C, Kaiser AM, Vukasin P, Beart RW, Ortega AE (2006) Intraoperative physical diagnosis in the management of anal fistula. *Am Surg* 72(1):11–15
5. Karadimas EJ, Trypsiannis G, Giannoudis PV (2011) Surgical treatment of coccygodynia: an analytic review of the literature. *Eur Spine J* 20(5):698–705
6. Wray CC, Easom S, Hoskinson J (1991) Coccydynia. Aetiology and treatment. *J Bone Jt Surg Br* 73(2):335–338
7. Lam TJ, van Bodegraven AA, Felt-Bersma RJ (2014) Anorectal complications and function in patients suffering from inflammatory bowel disease: a series of patients with long-term follow-up. *Int J Colorectal Dis* 29(8):923–929
8. Demirci U, Fall M, Göthe S, Stranne J, Peekers R (2013) Ur-ovaginal fistula formation after gynaecological and obstetric surgical procedures: clinical experiences in a Scandinavian series. *Scand J Urol* 47(2):140–144
9. Dickson JM, Riding KH, Ludemann JP (2009) Utility and safety of methylene blue demarcation of preauricular sinuses and branchial sinuses and fistulae in children. *J Otolaryngol Head Neck Surg* 38(2):302–310
10. Sonmezer M, Sahincioglu O, Cetinkaya E, Yazici F (2009) Uterocutaneous fistula after surgical treatment of an incomplete abortion: methylene blue test to verify the diagnosis. *Arch Gynecol Obstet* 279(2):225–227