Research Article

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Our experience of simple technique for successful primary closure after excision of pilonidal sinus disease

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ABSTRACT

Background: Chronic pilonidal disease is a debilitating condition that typically affects young adults. Controversy still exists regarding the best surgical technique for the treatment of pilonidal disease in terms of minimizing disease recurrence and patient discomfort. Primary closure after excision of post anal pilonidal sinus disease frequently has been complicated by wound breakdowns. Healing by second intention takes many weeks and requires supervised wound care. A simple technique has been developed which has resulted in primary healing in 41 of 45 patients treated in a 5-year period.

Methods: During the period November 2010 to December 2014, 45 patients underwent excision and primary closure of their pilonidal sinus by method as described.

Results: In all, 4 (9.5%) developed a recurrence of their pilonidal sinus; one at a different site and one could have been predicted from the histology which showed incomplete excision. If these two patients are excluded, the recurrence rate falls to 4.7 %.). In our series, most patients were male (male: female ratio 3:1), the mean age was 27.7 years, and these data compare with that in other series. The main aim of primary closure is rapid healing and this is achieved by the prevention of sepsis and hematoma formation; the causes of wound breakdown. The use of high vacuum suction drainage has been shown to be effective in preventing these complications but the patient is confined to bed for 2 days and to hospital for at least 4 days. We have found that meticulous attention to haemostasis and the use of a 'fat stitch' to minimize the subcutaneous cavity allows for minimal in hospital stay with similar results (early complication rate of 8.8% in our series compared with 6.4% reported by Williams.

Conclusions: We therefore advocate this method of treating pilonidal sinus which has a short hospital stay, minimal morbidity, rapid healing, short time off work, and low recurrence.

Keywords: Pilonidal sinus, Haematoma, Sepsis, Primary closure

INTRODUCTION

Pilonidal sinus disease of the natal cleft is common and disabling, typically affects the young and active, and is best treated by surgical excision of diseased tissues down to the sacrococcygeal fascia. Primary closure of the resulting wound cavity has frequently been complicated by early or late breakdown, occurring in 15% to 49% of cases in reported series due to the formation of an infected haematoma. 1,2 Numerous techniques have been described.3-7 Wounds left open take many weeks to heal and require daily nursing care, so surgeons have continued to attempt primary closure to avoid this. Traditionally, sutures of heavy-gauge material have been placed deeply and tied over a pack to exert pressure on the wound. This produces a bulky, uncomfortable dressing which does not always prevent haematoma. Infection may be encouraged by prolonged contact with

the packing (which traps wound exudate) and possibly by spread of bacteria down suture tracks.

A method is now described which has produced successful first-intention healing after excision of pilonidal sinus disease, without late wound breakdown or recurrence of pilonidal disease.

METHODS

During the period November 2010 to December 2014, 45 patients underwent excision and primary closure of their pilonidal sinus. All patients had clinically non-infected, symptomatic disease. Acutely infected cases were excluded. Patients were admitted on the day of surgery. Anaesthesia was either general or spinal. All patients received a single intravenous dose of cefuroxime 1.5 g at induction. The patients were positioned prone and the buttocks were not strapped apart. The patient was shaved from the gluteal skin crease to the mid-lumbar region extending laterally to the mid axillary line and the skin prepared with povidone-iodine. The incision was elliptical with its lateral margins equidistant from the midline at a level that would allow apposition of the wound edges (Figure 1). Lateral tracts were excised by lateral extension of the incision without compromising the closure. The caudal end of the wound was 2-3 cm from the anus and the cranial end placed at least 2 cm above the origin of the natal cleft. The incision was carried vertically down to the fascia overlying the sacrum (Figure 2). All specimens were sent for histological examination. Careful haemostasis with diathermy was carried out. The wound was infiltrated with 0.5% bupivacaine for immediate postoperative analgesia. Fullthickness, deep tension sutures (nylon1-0) were placed 1.5 cm from the wound margins at 2 cm intervals and left untied. Romo vac suction drain of no 12 or 14 kept at deepest and the fat was closed with interrupted Vicryl sutures in two or three layers. The skin edges were closed with interrupted nylon, taking care to achieve accurate apposition of the skin edges. The skin was cleaned with saline and dried. A roll of dressing gauze was placed over the length of the wound and the deep tension sutures tied over it (Figure 3, 4, 5). A wool and gauze dressing was taped over this. Postoperatively, the patients were usually allowed home the following morning. They all received a 10 day oral course of cefuroxime 500 mg twice daily. Sutures were removed on the ward at 10-12 days and the patients were reviewed in OPD at 4-6 weeks. Long-term follow-up was by questionnaire supplemented with telephone calls to non-responders.

RESULTS

The results are summarised in Table I. One of the patients undergoing a spinal anaesthesia had a dural leak resulting in headache and prolonged admission for 4 days. The average inpatient stay was 1 day with three patients being treated as day cases. When assessing the early complications, 2/45 (4.4%) complained of bleeding and

wound infection within 10 days (both of these went on to develop recurrences), 2/45 (4.4%) had minor wound breakdown at 6 and 8 weeks postoperatively (both healed by 3 months with simple dressings) and 9 (20%) complained of early severe pain. Severe pain was a feature seen before the introduction of local anaesthetic infiltration. Only 42 patients were available for followup. Of these, 25 (59.5%) were employed and returned to work by 3-4 weeks, 4 (9.5%) were self-employed and returned to work by 3 weeks, and 13 (30.95%) were unemployed. In all, 4 (9.5%) developed a recurrence of their pilonidal sinus; one at a different site and one could have been predicted from the histology which showed incomplete excision. If these two patients are excluded, the recurrence rate falls to 4.7%. Of the four patients, 2 (4.7%) developed recurrence within 12 months of operation. Two patients have had their recurrence treated; one by excision and flap closure without problems at 14 and 22 months of follow up and the third required a number of procedures to achieve a satisfactory result (this patient is educationally subnormal and personal hygiene has been a major problem.

Table 1: Summary of results of excision of pilonidal sinus with primary closure.

Total number	45
Male : female	3:1
Mean age [range]	27.7(15-55 yrs.)
Past h/o surgery	
abscess	7 (15.5%)
Laying open of sinus	4(8.8%)
General anesthesia : spinal	1:1
Avg hospital stay	1 day
Early complications	4(8.8%)
Number of follow up	42
Avg follow up period (range)	23.5(5-49) months
Recurrence rate	4 (9.52%)

DISCUSSION

Pilonidal sinus is a common infective process that occurs in the natal cleft and sacrococcygeal region, almost always in adolescents and young adults. Pilonidal sinus is not a new disease entity, but the management still needs a lot of attention to prevent recurrence, which is a disturbing complication requiring frequent hospital admissions and loss of work days.³ Many surgical techniques have been described highlighting the controversy regarding the best form of treatment. We have reported our series of 45 patients undergoing excision and primary closure.

Bascom and Edwards reported their experience with removal of the follicles and hairs. ^{8,9} In the study by Bascom 50 patients were treated by excision of the enlarged follicles from the midline skin. ⁸ One to 10 follicles were removed, individually if possible. The specimens weighed under 1 g in all patients. Incisions

were kept smaller than 7 mm. Follow-up averaged 24 months. The mean disability was 1 day, and the mean wound healing time was 3 weeks. Recurrences appeared in 4 patients (8%); all were healed 3 weeks following reoperation. There was no incident of a second recurrence. A later report by Bascom involving 161 patients treated in the same way revealed comparable results. In the study by Edwards, 102 patients were treated using this same technique. The median number of days off work was 10, and the median wound healing time 39 days. The 91 (89%) patients who attended the follow-up clinic were free of recurrent disease. Since a number of patients failed to attend, it is difficult to interpret the results of this study. It appears, however, that the author was not as successful as Bascom.

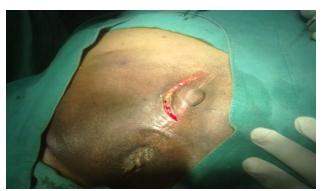


Figure 1: Incision mainly lateral.

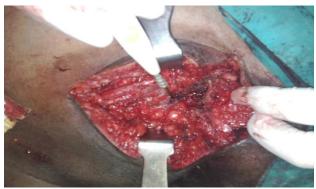


Figure 2: Wound defect after excision of sinus tract.



Figure 3: Final successful closure of wound with removal drain placed.

Zimmerman reported outpatient excision and primary closure in 32 patients. The mean follow-up was 24 months. In all patients, primary healing was achieved, a result that is similar to our own experience. Kronborg and colleagues¹² reported the results of a randomized trial of treatment by 1 of 3 methods: excision, excision with suture and excision with suture and antibiotic coverage with clindamycin. Recurrences rates were 13%, 25% and 19%, respectively. As expected, healing was much quicker after primary suture than after excisional therapy alone (median 14 d v. 64 d). In our series, most patients were male (male: female ratio 3:1), the mean age was 27.7 years, and these data compare with that in other series. The principles behind the operative technique have been described previously. 1,2 The main aim of primary closure is rapid healing and this is achieved by the prevention of sepsis and hematoma formation; the causes of wound breakdown.¹³ The use of high vacuum suction drainage has been shown to be effective in preventing these complications but the patient is confined to bed for 2 days and to hospital for at least 4 days. 13 We have found that meticulous attention to hemostasis and the use of a 'fat stitch' to minimize the subcutaneous cavity allows for minimal in hospital stay with similar results (early complication rate of 8.8% in our series compared with 6.4% reported by Williams. 13 This rate of failure of primary healing is similar to previously published figures.3



Figure 4: Pilonidal sinus with primary and secondary opening.

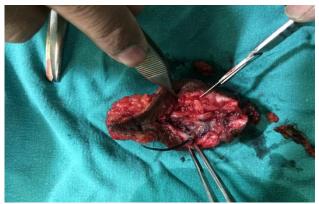


Figure 5: Specimen of pilonidal sinus tract with tuft of hairs in tract.

With the ever increasing importance of cost, short stay in hospital with no change in results is desirable. Hospital stay has decreased considerably. These operations are now carried out increasingly in our unit as day case procedures under local anesthesia. Bacteriological examination of pilonidal sinuses has shown the presence of staphylococcus and bacteroides species in at least 50% of cases. 14,15 The use of antibiotics has been shown to shorten the time to healing after primary closure. 12 Our regimen of antibiotics has resulted in a low rate of early complications (8.8%) compared with 16-30% in previously published series in which antibiotics were not used.^{2,16,17} As mentioned above, the ideal treatment should involve minimal inconvenience and time off work. Initial time to healing in our series is 10 days-similar to previous reports. 3,13,14,16 This is considerably less than the time to healing for excision alone (averaging 3 months). 3,14,17 The majority of patients returned to work in 3-4 weeks; again similar to previous reports. This compares with 42 days reported for excision alone. 16 Late recurrence rate at a mean follow-up of 23.5 months was 9.52% (4/42). However, if the patient with a 'recurrence' at another site and the one with incomplete excision at the first operation are excluded the rate falls to 4.7%. This is comparable to, and in some cases better than, previously published series of primary closure. 2,3,6,14,17 This compares with recurrence rates of 0-43% for laying open of pilonidal sinus and 1-36% for excision of pilonidal sinus down to sacral fascia.3 The follow-up period is relatively short and early recurrence is believed by some to be due to persistence of tracks lined with granulation tissue in an incompletely healed wound. 18 However, histology showed complete excision in all cases except one. Notaras states that hair is found only in late recurrences; hair was seen in two of the three patients who have had the recurrence dealt with.² We can therefore assume the recurrences to be true recurrences rather than failure of initial wound healing. The distinction between delayed healing and true recurrence needs to be considered. The latter represents incomplete excision of the pilonidal sinus at initial surgery or the formation of a new pilonidal pit and sinus. Delayed healing may also result in a track of granulation tissue with hair. As mentioned above, the presence or absence of hair has been used to indicate true recurrence; however, some prefer to define true recurrence as occurring more than 12 months after surgery (2, 3). If this criterion is used the result is 8.8% (4/45) early complication rate, 4.4% (2/45) delayed healing (two of the four 'recurrences' occurred within 1 year), and 4.4% (2/45) late recurrence rate.

We therefore advocate this method of treating pilonidal sinus which has a short hospital stay, minimal morbidity, rapid healing, short time off work, and low recurrence.

CONCLUSION

The management of colorectal cancer has progressed over the past few decades because of many advances, including those in genetics, pathology, imaging, medical oncology, radiation oncology, and surgery. ¹⁶ Undoubtedly, the management of patients afflicted with colorectal cancer will evolve as advances continue to be made in the multiple disciplines that contribute to the diagnosis and treatment of colorectal cancer.

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institutional ethics committee

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