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Excision and primary suture of pilonidal sinus

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Pilonidal sinus is a common disabling condition of young adults. Many different operative treatments have been suggested, the ideal treatment is, therefore, controversial. As the recurrence rate for the various procedures is similar, avoidance of a general anaesthetic, minimal inpatient stay, and minimal inconvenience and time off work become important considerations. We present our experience with excision and primary closure in 46 patients over a 4-year period. Half the patients had a general anaesthetic, the other half a spinal anaesthetic. Average duration of inpatient stay was 1 day. Early complications (haematoma, wound infection, and minor wound breakdown) occurred in 8%. Early pain was less of a feature after the use of bupivacaine infiltration at the end of the operation. There were 40 patients available for follow-up, with an average of 3 weeks off work and a recurrence rate of 17.5%. Of these patients, three have had the recurrence treated with no further problems.

The treatment of pilonidal sinus remains controversial. The ideal treatment should provide a high chance of cure with a low recurrence rate, avoid hospital admission and general anaesthetic, involve minimal inconvenience and time off work, and be cost-effective *(1)*.

Numerous techniques have been described *(1–5)*. The two most commonly used surgical techniques are excision alone and excision with primary suture. Review of past experience with these two techniques shows recurrence rates of approximately 10% *(1)*. Therefore, minimal inpatient stay and minimal inconvenience and time off work become more important considerations. We present our experience of excision and primary closure in 46 patients undergoing elective treatment of pilonidal sinus over a 4-year period.

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Patients and methods

During the period November 1989 to May 1993, 46 patients underwent excision and primary closure of their pilonidal sinus. All patients had clinically non-infected, symptomatic disease. Acutely infected cases were excluded, and during this period only three patients were treated by excision alone. 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. 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. 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. Full-thickness, deep tension sutures (nylon) were placed 1.5 cm from the wound margins at 2 cm intervals and left untied. These sutures were omitted in thin patients. The fat was closed with interrupted Vicryl® sutures in two or three layers. The skin edges were closed with interrupted prolene, 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; 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 cefadroxil 500 mg

twice daily and metronidazole 400 mg three times a day. Sutures were removed on the ward at 9 days and the patients were reviewed in clinic at 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 anaesthetic 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, 2/46 (4.3%) complained of bleeding and wound infection within 10 days (both of these went on to develop recurrences), 2/46 (4.3%) had minor wound breakdown at 6 and 8 weeks postoperatively (both healed by 3 months with simple dressings) and 11 (24%) complained of early severe pain. Severe pain was a feature seen before the introduction of local anaesthetic infiltration. Only 40 patients were available for follow-up. Of these, 27 (67.5%) were employed and returned to work by 3–4 weeks (except one who stayed off work for 2.5 years because of the coincidental development of epilepsy), 4 (10%) were self-employed and returned to work by 3 weeks, and 9 (22.5%) were unemployed. In all, 7 (17.5%) 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 12.5%. Of the seven patients, 5 (71%) developed recurrence within 12 months of operation. Three patients have had their recurrence treated; two by excision and 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 I. Summary of results of excision of pilonidal sinus with primary closure

Total number	46
Male : female	2.8:1
Mean age (range)	27.7 (15–55) years
Previous surgery	
Abscess	7 (15.2%)
Laying open of sinus	4 (8.6%)
General anaesthetic:spinal anaesthetic	1:1
Average inpatient stay	1 day
Early complications	4 (8.6%)
Number available for follow-up	40
Average follow-up period (range)	23.5 (5–49) months
Recurrence rate	7 (17.5%)

Discussion

Pilonidal sinus of the natal cleft is common and disabling *(6)*. Many surgical techniques have been described highlighting the controversy regarding the best form of treatment. We have reported our series of 46 patients undergoing excision and primary closure.

The principles behind the operative technique have been described previously *(7,8)*. The main aim of primary closure is rapid healing and this is achieved by the prevention of sepsis and haematoma formation; the causes of wound breakdown *(6)*. 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 *(6)*. We have found that meticulous attention to haemostasis and the use of a 'fat stitch' to minimise the subcutaneous cavity allows for minimal inhospital stay with similar results (early complication rate of 8.6% in our series compared with 6.4% reported by Williams *(6)*). This rate of failure of primary healing is similar to previously published figures *(1)*.

With the ever increasing importance of cost, short stay in hospital with no change in results is desirable. Hospital stay has decreased considerably from 16 days in 1970 *(8)* to day case surgery in 1992 *(9)*. Overnight stay in our unit compares favourably with the latter. These operations are now carried out increasingly in our unit as day case procedures under local anaesthesia.

Bacteriological examination of pilonidal sinuses has shown the presence of staphylococcus and bacteroides species in at least 50% of cases *(10,11)*. 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 (8.6%) compared with 16–30% in previously published series *(8,9,13)* in which antibiotics were not used.

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 *(1,6,9,10)*. This is considerably less than the time to healing for excision alone (averaging 3 months) *(1,10,13)*. 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 *(9)*.

Late recurrence rate at a mean follow-up of 23.5 months was 17.5% (7/40). 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 12.5%. This is comparable to, and in some cases better than, previously published series of primary closure *(1,4,8,10,13)*. 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 *(1)*. The follow-up period is relatively short and early recurrence is believed by some *(14)* to be due to persistence of tracks lined with granulation tissue in an incompletely healed wound. However, histology showed complete excision in all cases except one. Notaras *(8)* 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. 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 *(1,8)*. If this criterion is used the result is 8% (4/46) early complication rate, 12.5% (5/46) delayed healing (five of the seven 'recurrences' occurred within 1 year), and 5% (2/40) 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.

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