ABSTRACT
Objectives: To describe the results of the surgical technique of pilonidal cyst excision with margins and primary closure of the operative wound with support suturing. Methods: Twenty-eight patients with pilonidal disease admitted to a private clinic between 1999 and 2006 underwent surgical treatment by means of an elliptical longitudinal medial incision proportional to the palpable tumor size and excision of cyst with 2-cm margins above, below and laterally, and primary closure of the wound. To reduce the tension in the operative wound, suturing was performed, with a single support stitch of horizontal U-shape. The patients were followed up for periods ranging from 6 months to 3 years. Results: Two patients developed abscesses at the surgical site (7.1%), and one required complete opening of the operative wound for drainage. All underwent excision and primary closure again. The pathological examination demonstrated that these were not cases of relapse, but of recurrent abscess. No cases of non-infected collection (seroma and hematoma), spontaneous dehiscence of the operative wound or disease recurrence were recorded. Conclusions: The technique of pilonidal cyst excision with margins and primary closure of the wound reinforced with support suturing seems to be attractive, since it is characterized by low complexity and low infection rate. Studies with larger samples are needed to validate this surgical technique.

Keywords: Pilonidal sinus/surgery; Cysts/surgery; Postoperative complications; Infection; Suture techniques

INTRODUCTION
Sacrococcygeal pilonidal disease consists of chronic inflammation of a cyst of variable size, in the sacrococcygeal region subcutaneous tissue. It is usually filled with loose hair and its secretion comes up to the skin through one or more orifices between the posterior anal region up to the sacrum. The initial manifestation is generally an abscess. It affects approximately 25 individuals in 100000,
and it occurs between puberty up to roughly 25 years of age. It is more frequent in males than females (ratio of 4:1) and affects more Caucasians\(^1\)\(^-\)\(^8\).

Pilonidal disease has been studied for a long time and its causes are unknown\(^3\)\(^-\)\(^9\)\(^-\)\(^10\). Some authors suggested that pilonidal cyst is a congenital disease, corresponding to remnants of the medullary canal. Others believe it results from penetration of hair follicles into the intergluteal sulcus subcutaneous tissue, causing a foreign body reaction. The literature reports that 50% to 75% of cysts contain loose hair inside\(^7\).

The main differential diagnoses are perianal fistula, hidradenitis suppurativa, pioderma gangrenosum, simple abscess and meningocoeles\(^7\). Transformation into verrucous carcinoma is rare and, in such cases, the prognosis is guarded (survival of approximately 20% in two years)\(^11\).

There are several treatments proposed and there is no consensus as to the best technique to be employed\(^3\)\(^-\)\(^9\)\(^-\)\(^10\). In acute cases, abscess aspiration or drainage with or without curettage are performed. For recurrent disease (chronic), there are several therapeutical options, such as curettage, excision with no primary suture (open technique), excision with primary suture (closed technique), excision associated with flaps (fasciocutaneous V-Y flaps, Z- or W-plasty, rhomboid flap and gluteus maximum muscle myocutaneous flap), marsupialization (or Buie technique), among others\(^4\)\(^-\)\(^7\)\(^,\)\(^11\)\(^-\)\(^12\). No techniques have enough samples and controls to determine the best treatment. Infection and recurrence are the major problems of the disease\(^3\)\(^,\)\(^4\)\(^,\)\(^9\)\(^,\)\(^13\).

**OBJECTIVE**

To describe the frequency of infection and postoperative dehiscences and recurrence of the disease in 28 patients with pilonidal cyst, treated by margin excision and primary closure of the surgical wound with support suturing.

**METHODS**

This is a case series study that enrolled 28 patients with diagnosis of pilonidal disease, who were sequentially admitted to a private clinic from 1999 to 2006 for surgical treatment. The series comprised 20 men and 8 women, 26 Caucasian and 2 of Oriental race. Age ranged from 18 to 37 years (mean age of 27 years).

Seven patients presented acute infection of the pilondal cyst (abscess) upon admission, and they underwent – before the definite treatment - surgical drainage with local anesthesia and placement of a laminar drain, associated to antibiotic therapy with ciprofloxacin (1g/day) and metronidazol (1.2 g/day) for 15 days. The drain was routinely removed four days after drainage. After the course of antibiotics, they were referred to pilonidal cyst excision.

Patients were informed about the different surgical techniques to treat pilonidal cyst and about the respective results and complications. All patients signed the “Informed Consent Term for General Surgery Procedures” before the definite operation.

After spinal anesthesia, the patients were placed in prone jack-knife position, with two adhesive straps in each gluteal region to pull them laterally and allow better visualization of the intergluteal cleft. Later, shaving of the surgical area was performed immediately before asepsis.

The medial elliptical incision was longitudinally performed with a monopolar cautery, and the extension was proportional to the palpable tumor, keeping 2-cm surgical margins. The resection area was deep up to the sacral fascia (figures 1 and 2).
After excision of the surgical specimen and hemostasis, the surgical bed was embedded with a phenic acid solution (100 ml acid diluted in 250 ml saline solution 0.9%) for two minutes. Later the region was flushed with saline solution 0.9%.

To make primary closure of the surgical wound easier, the lateral traction adhesive straps were cut. Suture with a wide horizontal U-shaped stitch (support suture, “subtotal” suture or “capitonnaged suture”) was performed with 1-0 polypropylene suture. Care was taken to encompass the full thickness subcutaneous tissue. The external segments of the “U” suture thread were protected with plastic material from the intravenous line to avoid skin tear (figure 3). Before tying the thread, the subcutaneous mesh was placed closer through one or two layers of separate 0-0 nylon stitches. To reduce tension in the wound and make closure easier, the polypropylene suture was pulled when knotting each nylon stitch (figure 4). Upon closure of the subcutaneous tissue, the polypropylene suture was definitely tied. Finally the skin was sutured with separate 3-0 nylon vertical “U” stitches (Donatti), one centimeter apart from each other. No drainage of the surgical wound was carried out. The mean surgical time was 40 minutes.

The length of stay at the clinic was 24 hours. During admission, patients received intravenous antibiotic therapy with ciprofloxacin (1 g/day) and metronidazole (1.5 g/day) and intravenous analgesia with dipyridone (4 g/dia) and ketoprofen (200g/day). After discharge, ciprofloxacin and metronidazole P.O. were prescribed for 10 days. General anti-inflammatory agents were prescribed for five days for home analgesia. The polypropylene support suturing was removed ten days after surgery and skin suture, five days later. The surgical specimens showed elliptical structures measuring, in average, 5.7 vs. 2.2 cm, 4.0-cm deep, with a cystic cavity and direct communication with skin orifice; it was filled with a paste-like and yellowish material.

All patients were recommended to walk freely but not to exercise or sit down for 10 days. When lying down, they should be in lateral decubitus or prone position and not stay in supine position for long periods. They resumed work within 15 days and physical activities within 30 days. Exercises that demand direct contact with the gluteal region (such as horse-riding and judo) were allowed after 60 days. For voiding, patients were asked not to sit on the rear portion of the toilet lid and to clean with running water in the opposite direction of the incision. Patients were told to use sanitary pads as dressing. The postoperative follow-up ranged from six months to three years.

In this study, the wound was considered infected when it presented hyperemia and purulent discharge. The criterion adopted for dehiscence of the wound was spontaneous partial or total opening of the suture. The definition of recurrence was based on histopathological evidence of pilonidal cyst in the excised surgical specimen.

RESULTS

In all cases, the surgical wound discharged a minimum amount of serosanguineous fluid for a few days after surgery. In two cases (7.1%) a purulent discharge was observed in a wound with hyperemia and the picture was compatible with infection. In one case discharge persisted for three months; the other patient developed abundant purulent postoperative collection in the surgical wound and it was necessary to drain through a complete and
intentional suture opening. Closure occurred by second intention in this patient. Even after closure there was persistent discharge of purulent fluid. Both patients were later submitted to a new excision with primary suture – therefore, they were considered recurrent cases. The pathological examination of the specimens of the second operation did not show structures compatible with pilonidal cyst, but revealed recurrent abscess.

Spontaneous dehiscence of the surgical wound was not observed in any case. There were no signs of seroma, hematoma or epidermal damage, such as epidermolysis or skin necrosis. There was no recurrence in the follow-up period.

**DISCUSSION**

Some authors prefer to treat pilonidal disease through excision with no primary suture (open technique), although the literature reports higher frequency of pain, bleeding, longer hospital stay and delayed return to physical and professionals activities\(^{(4,5)}\). On the other hand, other authors perform surgical wound closure by detaching and laterally advancing skin and fat flaps\(^{(4,11-12)}\). However, we do not agree with this management. First because infection may occur in the surgical site and detaching the subcutaneous tissue may increase the infection area with unpredictable consequences. Second, flap necrosis may occur, leading to larger surgical wound and, consequently, to longer hospitalization and delayed return to activities. Third, because simply advancing lateral flaps is not always enough to close the surgical wound in the sacral region – it is often necessary to rotate more complex flaps, such as rhomboid and myocutaneous flaps that require larger detachment and specialized technical training\(^{(3,5,14)}\). Hence, we chose a technically simpler closure that is often used by general surgeons to reduce suture line tension in the abdominal wall. The advantage of this technique is to avoid detachment of skin fatty flaps and the above-mentioned inconvenient consequences.

The complications described in the literature regarding the closed technique are infections (30%), non-infected collections, such as seromas or hematomas (3%), and dehiscences of the surgical wound (6%)\(^{(1)}\).

In this series of patients there were two cases of infection and the frequency was lower than that reported in the literature. It is worth mentioning that two patients presenting postoperative infection already had previous acute infection of the pilonidal cyst and were submitted to drainage and antibiotic therapy before definite surgery. We believe that the lower frequency of postoperative infection is due to the reduced sample of this series and also to different criteria used to define infection. In this study, infection was considered as leakage of purulent secretion through the surgical wound and not only peri-incisional hyperemia. Moreover, comparison among studies is hindered by lack of standardization of postoperative antibiotic therapy used for pilonidal cyst\(^{(4)}\). We decided to use ciprofloxacin and metronidazole in the postoperative period for a prolonged interval, in order to keep the surgical site free of gram-positive, gram-negative and anaerobe bacteria, thus facilitating healing\(^{(1,15)}\). In patients with no recent pilonidal cyst infection, the use of antibiotics after surgery might not be necessary\(^{(16)}\). However, only a prospective controlled study with an appropriate sample could answer this issue.

Other complications, such as seromas, hematomas and spontaneous dehiscences of the surgical wound, were not observed in this series. This is probably due to the limited number of cases included in the study. The rate of surgical wound dehiscence in the literature is approximately 6% with the closed technique, and resuturing with local anesthesia is recommended in early dehiscences\(^{(3,13)}\). In our series there was only one case of intentional opening of suture to drain a collection in the surgical site. Nevertheless, it was not a true dehiscence of a surgical wound.

The postoperative recurrence rates of pilonidal cysts are low and do not vary significantly among the techniques used, since the cyst is completely excised\(^{(9)}\). The causes of recurrence are still not well known\(^{(15)}\). However, it should be explained that the true recurrence consists of appearance of a new cyst with hair in the sacrococcygeal region or formation of granulation tissue with hair during healing process. It should not be misunderstood as false recurrence, such as formation of abscess in the surgical site, drainage of postoperative collection and local pain. In the present study two patients developed a postoperative clinical picture compatible with recurrence due to persistent purulent secretion, and underwent another excision and primary closing with support suturing. In both cases the pathological examination demonstrated it was not recurrence but abscess of the surgical site. The fact that no recurrence was observed in this series is related to the limited number of cases and to short follow-up of patients.

**CONCLUSIONS**

The technique of pilonidal cyst excision with margins and primary closure with support suturing seems to be interesting since it is characterized by low complexity and low infection rate. In this study, the cases of postoperative infection occurred in patients who already had an acute infection of the cyst before the definite surgery. Further studies with larger samples are required to define the
frequency of recurrence and of other postoperative complications, such as non-infected collections (seromas and hematomas) and surgical wound dehiscences.

REFERENCES


