Pilonidal sinus arises in the natal cleft of the sacrococcygeal region either as a cyst or as an abscess collection containing hair. It is predominantly a condition of younger people. When presenting as an abscess it usually requires surgical incision and drainage, or bursts spontaneously.

In general, there are various surgical approaches to this condition, from very simple to complex ones. Each technique has its supporters and justifications. In the 3 years period, from 2009-2011, 110 treatments of the pilonidal disease were performed on our department. Midline excision was performed in 75 (68.18%) patients and the rest had marsupielisation done. The average discharge time was 1.14 days. Failure to heal occurred in 15 patients (13.63%). During that period we saw recurrence in 4 patients (3.63%). All the patients were coming to our department for postoperative care. The shortest healing time was 4 weeks and longest 21 weeks. During the period may 2011-may 2012 we performed 17 less extensive excisions. All the patients were discharged from the clinic within 23 hours and returned to their daily activities within 5 days. Healing time varied from 2 weeks to 5 weeks. In only one patient with the extensive excision healing time was 8 weeks. Although we had a short follow up period of 11.11 months, we saw no recurrence yet. Our results show that simple individual approach to every patients gives fastest and most comfortable results.

Key words: pilonidal sinus, minor, complete, excision, subcutaneous

INTRODUCTION:

The hair containing sinus in the sacrococcygeal region usually presents just as pits in the intergluteal cleft, or can have first manifestation as an abscess of that region. The incidence of pilonidal disease in USA is about 26 per 100,000 population. It occurs mostly in white males, at a ratio of about 3:4:1, typically in late teens to early twenties, decreasing after the age 25 and rarely occurs after 45. In children, however, the ratio is opposite, occurring in 4 females for each male it afflicts. The pilonidal disease was first described by Mayo in 1833, and Hodge gave the name to this condition in 1880. from its Latin origin meaning hair nest.

Two theories of pathophysiology were proposed: congenital and acquired. The pilonidal cysts and sinuses were thought to be embryologic remnants resulting from failed involution of the neural tube structures and it was studied on fetuses, identifying remnants of midline structures. After the experience from the 2nd World War and the Jeep disease Buiey introduced a theory of an acquired etiology for pilonidal disease in 1946. and it was later supported by other studies.

Bascom suggested that an ingrown hair in the natal cleft was drawn inside the subcutaneous tissue by gluteal friction, presenting later on as a cyst containing debris and hair or an abscess collection. Karydakis proposed that a loose hair get inserted deep into the subcutaneous tissue of the natal cleft, and that is followed by the insertion of other hair more easily, causing foreign body tissue reaction and infection. Secondary openings can be caused by spontaneous bursting of the abscess or further burrowing of the hair. Studies of surgical specimens have found cysts containing hair and debris, but hair follicles have never been found in the cyst wall itself. The further support to this
theory is offered by the reports of pilonidal disease in other areas of the body, such as the hands of barbers, sheep shearers, and others who handle loose hairs. There are many approaches in the treatment of this condition. It makes a difference if the patient presents with an abscess or with openings in the intergluteal groove with protruding hair. Also the size of the sinus, presence of secondary tract, recurrent condition or previous incisions may have an impact on surgeon’s decision.

MATERIALS AND METHODS

At the 3rd department of The First Surgical Clinic, Clinical Centre of Serbia, during the period 2009-2011, 110 treatments of the pilonidal disease were performed. 102 patients were admitted to the hospital for the operative treatment. The remaining 8 patients were treated as outpatient, and had only incision, hair removal and the curettage done.

All patients were operated under local anesthesia. Midline excision was used in 75 (68.18%) patients. The rest had marsupielisation performed. The average discharge time was 1.14 days. Failure to heal occurred in 15 patients (13.63%), and it was treated by hair removal, AgNo3 cautery or local applications of antibiotic creams. During that period we saw recurrence in 4 patients (3.63%). All the patients were coming to our department for postoperative care. The shortest healing time was 4 weeks and longest 21 weeks.

Younger surgeons and surgical trainees at our department were the doctors who were dealing mostly with this issue. As surgical knowledge and experience were increasing, more logical approach was developed. During the period may 2011-may 2012 we performed 17 less extensive excisions, very similar to the technique described by Lord and Millar.

Namely, our approach was subcutaneous excision of the sinus tract with maximal preservation of the healthy skin. The skin around openings of the tract was minimally excised, but without detachment from the underlying sinus tract. Both openings of the tract were clamped by mosquito forceps. A 15 blade knife was than inserted into the wound and excision of the whole tract was performed by alternating approach from both sides until the excision is completed (Figure 1A). Secondary tracts were solved in the same manner (Figure 2A and 2B). All the pits in the midline were individually excised, or if too close to each other, en block deroofing was done. In case of granulation tissue in the secondary tracts, we did not insist on its excision, but simple curettage was performed. Basically, we were preserving the healthy skin as much as possible and even skin bridges that were about 1 cm in length offered faster healing.

If a patient presented with small pilonidal abscess in the midline, with few pits and a short tract, simple incision and drainage, followed by curettage several days later was our option. Hemostasis was achieved by packing the wound by gauze soaked with 3% hydrogen peroxide. It was removed a day or two after the intervention, depending on the size of the defect, and the wound was not packed again. Pressure was applied from the outside and upon the release from the clinic patients were advised to shower every day and wash that area thoroughly with soap and water, followed by rinsing with various antiseptic solutions. They had checkups once a week and occasional cauterization by silver-nitrate sticks was necessary due to the presence of hypergranulations at the openings of the wound. Shaving of the whole area was obligatory (Figure 1B).

All the patients were released less than 24 hours after the intervention. Two patients were solved as office day interventions and the rest of them were admitted as day surgery procedures with overnight stay.

One patient had excessive bleeding few hours after the surgery that was solved by repacking of the wound. Infection of the wound was seen in two patients whose distal orifice of the tract was less than 3cm away from the anus. The infection was solved by shaving, thorough rinsing and application of antiseptic and hypertonic solutions.

The shortest period of healing was seen in a patient who presented with acute inflammation of the sinus, 2 cm in length, and who had only incision and curettage per-
formed. Two weeks later the wound completely healed and has been recurrence free for more than a year. The longest period of healing was 8 weeks in a patient who had a long tract very close to the anus with four pits at that side of the tract that had to be deroofed together, leaving a defect of 4 cm in length that had to be packed regularly. The caudal opening of the sinus was about 7 cm away. Subcutaneous excision of the rest of the tract was performed and healed uneventfully.

All the other patients healed completely within 5 weeks period and returned to their daily activities within 4 days after the surgery.

The mean follow-up time was 11.11 months and during that period we did not see any recurrence.

**DISCUSSION**

The conservative treatment that was applied by Armstrong and Barcia from Tripler Army Medical Center, Hawaii considered shaving all hairs within the natal cleft, 5 cm from the anus over the sacrum along with the removal of all the visible ones within the sinus, but without probing for hair within the sinus. In case of an abscess a lateral incision and drainage were performed. In all patients the wound healed, but there was no long term follow-up.13

Application of crystallized Phenol was done by Dogru et al.14 with success of less than 1% recurrence within the first year and median recovery time was 43 days. Unfortunately not many hospitals have Phenol in this form.

When it comes to surgical treatment, regardless of what theory of etiology the surgeon supports, the concept of treatment is remarkably similar. It comes down to the excision of the midline pits or sinuses and thorough cleansing of hair and debris from the sinus tract and at this point Lord and Bascom agree.4,6 The avoidance of the midline incision is emphasized by Bascom, since the healing is slower.6 There has been a success rate of 90% recurrence free rate within one year by this, off midline incision, debridement and lay open technique reported by Senapati et al.15

Buie and, later on, Culp advocated midline incision with marsupielisation of the wound5,16.

The average healing time is four to six weeks, with prolonged healing (12-20 weeks) in 2% to 4% and recurrence in 8%.7,17

When it comes to the wide open technique, Al-Hassan et al.18 found that the mean time of healing was 13 weeks (range, 4-78 weeks) and that the recurrence rate was 12% with a mean follow-up of 25 months.

Excision with primary closure of the wound resulted in a shorter healing time than excision with an open wound, and that the recurrence rate varied from 0% to 38% as shown by independent studies of Kronborg et al.19,20 and by Testini et al.21

Lord and Millar suggested a simple treatment by removing all the hair from the sinus and mopping the tracks clean, while leaving the granulation tissue and removing as little normal skin as possible12. Edwards used this technique on 102 patients and showed 11% recurrence during 5-year follow up, provided that the patients had adequate hygiene and hair removal until the wound healed, otherwise, with failure to attend the clinic, the recurrence freedom fell to 57%.22

Limited excision was described by Oncel et al.23 requires excising each individual pit along with a funnel-shaped cone of tissue around the track and leaving open to heal by secondary intention.24 They found that the patients were able to return to work in 2 days and healed.
completely in 43 days, with only one recurrence after 1 year of follow-up.

Another prospective randomized trial by Mohamed et al. reported that the patients treated by limited excision had shorter operative time, shorter length of stay and less postoperative pain, while the ones treated by wide excision with open wound had the longest time to complete healing. There was no difference in recurrence among the three groups and therefore recommended a limited excision approach when possible.

Bascom described an advancement flap operation based on his theory that treatment of pilonidal disease should center around removing the midline follicles or pits rather than excising large amounts of tissue, draining the underlying abscess, and elevating the gluteal cleft with primary suture away from the midline.

He reported his experience with 149 patients with 3.5 year follow-up after follicle-excision surgery and found that 16% had recurring problems and that all his patients were able to return to work within 1 day of surgery and took approximately 3 weeks to heal the lateral wound.

Other techniques, like the one described by Karidakis, or rhomboid or V-Y and Z-plasty are advocated as a solution in scarring disease or in failure to heal. The recurrence rate of Karidakis flap was 1%, with follow-up ranging from 2 to 20 years, and the patients returned to work within 1 day of surgery and took approximately 3 weeks to heal the lateral wound.

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Topgul et al. reported 200 cases of rhomboid flap, with the mean follow-up was five years, including 13 cases for recurrences using this technique. Minimal flap necrosis occurred in 3%, seroma in 2%, wound infection in 1.5%, and recurrence in 0.5%. Latest studies by Okus et al. shows that Limberg flap does not offer significant advantages in healing than tension free primary closure.

Petersen et al. performed Medline search and made comparison of long term results in all the reconstructive techniques. Overall wound infection occurred in up to 38.5%. The highest infection rate of 12.4% was observed in the midline closure group, and the lowest in the V-Y group. The wound failure appeared in up to 52.4% of all procedures. The lowest failure rates of 3.5% and 3.4% were observed in asymmetric oblique technique group and the rhomboid group, respectively. Recurrence was observed in up to 26.8%, with highest in the midline closure group and lowest in asymmetric oblique group and rhomboid group.

Many operations for pilonidal disease end up worse than the disease itself.

Our early results speak in favor of less aggressive approach with acceptable hospital stay, time to heal period and more than satisfactory incidence of recurrence.

CONCLUSION

Less extensive surgical approach gives faster healing time with satisfactory results. It offers comfort to the patient, lowers the overload of the nursing stuff and consequently influences the cost-effectiveness of the surgical unit. Advanced techniques should be performed in complicated and recurring cases. The initial treatment should be simple and most, if not all, should be performed on outpatient basis.

SUMMARY

Pilonidal sinus se javlja u interglutealnoj brazdi sakrokojog ciganog krvnih žila kraka u kojoj se nalaze dlake i to uglavnom kod mladih ljudi. Kada se javi u vidu apscesa spontano perforira ukoliko se ne učini inicijacija i drenaža. Postoje razni hirurški pristupi u rešavanju ovog stanja, i to od najjednostavnijih do komplikovanih tehnika, a svaki ima svoje pristalice i opravdanja. U trogodišnjem periodu, od 2009-2011 godine na našem odjeljenju je operisano 110 pacijenata zbog pilonidalnog sinususa. Kod 75 (68.18%) je učinjena totalna središnja ekscizija, dok je kod ostatka učinjena i marsupielizacija. Srednje vreme do otpusta iznosi 1.14 dana. Nemoćnost zarastanja rane je vidjeno kod 15 pacijenata (13.63%). U istom periodu imali smo recidiv kod 4 pacijenta (3.63%). Svi pacijenti su dolazili na redovna previšanja i najkraće vreme do zarastanja je iznosilo 4 nedelje, a najduže 21 nedelju.


Ključne reči: pilonidalni sinus, ekscizija, subkutano

REFERENCES:


