Pilonidal cyst disease was first described in 1833 by Herbert Mayo as a sinus containing hair, and the term pilonidal cyst was first proposed by Hodge, in 1880 (1). Since then, a number of theories to explain the etiology of the disease have been established. It is believed that the disease was acquired. Changes occurring under the influence of hormones in sebaceous glands during puberty, hair in the midline on the sacrum, and shape of the gluteal fissure, which predispose hair penetration are responsible for the above-mentioned disease (2, 3, 4). Despite the passing time the etiology of the disease remains controversial, since according to some authors 50% of patients with gluteal fissures have no hair within the cysts (5, 6, 7).

It is believed that hair is an important factor of the disease, although not its primary cause (8, 9, 10). Amongst the mentioned risk factors of pilonidal cyst occurrence are the following: time spent in the sitting position, personal hygiene, obesity, and density of hair in the sacral area (11, 12). The disease mainly concerns young people, aged between 16 and 25 years (13). The disease causes significant pain, considerable discomfort and impairs daily functioning, often resulting in an inability to work and study. Many techniques have been introduced in the treatment of pilonidal cysts, but till today no gold standard has been established.

The aim of the study was to present initial results considering the treatment of pilonidal cyst disease with the use of a skin flap by means of Limberg’s method.

Material and methods. During the period between January, 2012 and March, 2013, 10 patients were operated due to pilonidal cysts using the Limberg flap procedure. All patients presented with the chronic form of the disease and were after previous surgical incisions. Pain considering patients was evaluated using the visual pain scale (VAS), one and 10 days after the operation. Patients reported for control 10 days, one month, and 6 months after the surgical procedure.

Results. The planned procedure was safely performed in all cases. There were no complications during the procedure, nor late postoperative complications. We observed no wound infection or dehiscence in all operated patients. The mean follow-up time of the presented group was 13.32 months (ranging between 7.53-21.57). During the follow-up period there was no episode of recurrence.

Conclusions. The use of the skin flap by means of Limberg’s method after excision of the pilonidal cyst in the sacrum area is a good method, which provides a very low percentage of recurrences and complications. Fast return to daily activities, no significant pain in patients, and an acceptable cosmetic result are strong reasons in favor of the above-mentioned method.

Preliminary observations and experience enable to recommend this method for the treatment of pilonidal cysts in the vicinity of the sacrum.

Key words: pilonidal cyst, surgical procedure, skin flap, Limberg’s method
pain, considerable discomfort, and impairs daily functioning often resulting in an inability to work and study. In 1980, in the United States, 40,000 patients spent 208,000 days in the hospital, due to pilonidal cyst, which cost 40 million dollars (8). The desire to reduce the cost of treatment, shorten hospitalization, and reduce the number of recurrences was the main motivation for the search for new effective methods of treatment.

Many techniques used in the treatment of pilonidal disease have been described, including the following: simple excision, marsupialization, application of phenol, cryotherapy, laser excision, simple excision with anastomosis, oblique and asymmetrical excision with primary anastomosis, V-Y plasty, Z-plasty, Karydakis flap plasty, and Limberg flap plasty. Despite such a broad spectrum of therapeutic methods in case of pilonidal cysts, no gold standard has been established. All above-mentioned methods are characterized by different recurrence rates, incidence of infection and postoperative wound dehiscence, duration of hospitalization, cosmetic effects, and pain intensity.

The study presented initial results considering the treatment of pilonidal cyst disease with the use of a skin flap by means of Limberg’s method.

MATERIAL AND METHODS

During the period between January, 2012 and March, 2013, Limberg’s flap procedure was performed in 10 patients treated for pilonidal cyst disease in the upper area of the gluteal fissure. All patients presented with the chronic form of the disease after previous surgical incisions and interventions, due to an acute condition. The skin in the vicinity of the gluteal fissure was location to single or multiple fistula orifices (fig. 1). After admission to the hospital all patients were subjected to basic laboratory diagnostics and qualified for surgery. All procedures were performed under general anesthesia. Prior to the surgical procedure prophylactic antibiotics were administered: 1 g Biodacin and 1.5 g Cefuroxim. During the procedure patients were positioned on their belly with a roller dubbed at the hip level, in order to accurately expose the treated area. Before the procedure a diamond-shaped incision was marked on the skin and the flap used to cover the tissue defect (fig. 2 and 3). After excision of skin and subcutaneous tissue fragments, the radicalism of the excision was checked by injecting methylene blue into the lumen of the fistula. The changed tissues were removed to the level of the presacral fascia. The flap was mobilized and prepared, and ligated to the subcutaneous tissue using vicril 3-0 sutures. In all cases the Redon 10 Fr drain was left in place, being removed 1-2 days after surgery. Non-absorbable interrupted skin su-
tures were used. During the initial days after surgery non-steroid drugs were used (Ketonal 2x100 mg). Pain was evaluated on the basis of the visual pain scale (VAS), one and 10 days after the surgical procedure. Patients reported for control 10 days, one month, and 6 months after surgery (fig. 4).

RESULTS

In all patients we were able to safely perform the planned procedure. Perioperative complications were not observed. The mean duration of the surgical procedure was 40.8 minutes (ranging between 31-55 minutes). All patients were subject to early rehabilitation the day after surgery. None of the patients complained of significant pain, the average VAS score one day after surgery amounted to 3.6 (ranging between 2-5), and after 10 days 1 (0-2). Mean hospitalization was 3.8 days (ranging between 3-6 days), and mean return to full everyday activities- 14.6 days (ranging between 11-20 days). Patients did not complain of any problems during defecation.

Distant postoperative complications were not observed. In all 10 operated patients postoperative wound infection or dehiscence was not observed. Average patient observation period amounted to 13.32 months (ranging between 7.53-21.57 months). During the follow-up period there was no episode of recurrence.

DISCUSSION

Lack of a final consensus concerning management of pilonidal cysts leads to the question, which therapeutic method should we propose to the patient. The optimal method in the treatment of pilonidal cysts should be characterized by the following: low number of complications, short hospitalization, fast recovery to everyday activities, lack of recurrence, providing a good quality of life, and satisfactory cosmetic effects. One of the first hypotheses concerning the etiology of the disease assumed that it is a congenital condition, which became the basis for the wide surgical excision, and in case of recurrence, the incision was considered as not fully radical. It is now known that the primary wide excision without wound closure is associated with a high recurrence level and long wound healing time. Additionally, a large open wound in the vicinity of the sacrum is hard to accept by young people, as well as the remaining scar (14-17). Based on the Cochrane database analysis concerning the comparison of results between suturing after primary excision and leaving an open wound, we observed that wound closure was associated with a faster recovery period and return to everyday activities. Better results (fewer recurrences and postoperative wound infections) were obtained in case the suture line was shifted laterally, in relation to the intergluteal line (18). The above-mentioned arguments speak in favor of wound closure.

According to Karydakis, tissue tension and the shape of the gluteal fissure play an important role in the development of pilonidal cysts (19). The introduction of pilonidal cyst therapeutic methods with the shift of the skin flap was aimed at eliminating the two above-mentioned factors. The use of moving flaps significantly influenced the reduction in the number of recurrences, which after primary wound closure ranged between 7-42%, while in case of skin flaps 0-3% (20). The main arguments against the use of skin flaps concerned the duration of the procedure, flap necrosis, and post-surgery cicatrization. Horwood et al. (meta-analysis) demonstrated that the number of wound infections after primary closure amounted to 14%, while that after flap closure – 4.5%. The authors emphasized that primary wound closure under tension might lead to wound ischemia and necrosis, which favors infection. Shifted skin flaps are not exposed to
As mentioned above, wound closure without tension using skin flaps significantly improves pilonidal cyst treatment results, especially considering the smaller number of complications and faster recovery to everyday activities. Quick return to health and lack of recurrence translate directly into patient satisfaction. Plasty using skin flaps is associated with cicatrization, where the scar is bigger than in case of primary closure. Can et al. compared the use of Limberg’s and Karydakis’s flaps in both groups, demonstrating on the basis of a survey that the highest level of satisfaction amounted to 64.8% and 69.8%, respectively. Additionally, in case of both groups all patients would recommend the given method to all patients with the same diagnosis (22). Karaca et al. presented similar results comparing patients operated by means of Limberg’s and Karydakis’s techniques. Considering patients subject to surgery by means of Limberg’s method, 78% chose the highest level of satisfaction. All patients after Limberg’s method recommended the operation too others (23). The high level of patient satisfaction after flap surgery allows to conclude that rapid and sustained recovery in the above-mentioned group is a priority, and the remaining scar is not a problem.

Several techniques have been described considering flap movement, one of which is the use of Limberg’s flap. In our opinion this is a relatively simple method, which does not require a learning curve, and at the same time provides good treatment results. Average hospitalization in our center after surgery was 3.8 days. In literature data hospitalization after Limberg flap surgery ranged between 1.43-16.9 days. Ersoy et al. suggested that it is safe to discharge a patient from the hospital 48 hours after surgery, in the absence of complications (24). An alternative for the above-mentioned method is the use of skin flaps by means of Karydakis and Bascoma methods. These procedures are aimed at removing wide margins of tissue and covering them with an asymmetrical skin flap collected from one of the buttocks. No statistically significant differences were observed considering hospitalization after Limberg’s and Karydakis or Bascoma techniques (23, 24, 25).

Another aspect considering the choice of the therapeutic method is patient comfort and postoperative pain. Comparing patients undergoing surgery for pilonidal disease by means of Karydakis and Limberg techniques the authors observed that an average of 4.5 days after surgery (Limberg) patients did not require analgesic drugs. After Karydakis’s procedure the above-mentioned amounted to an average of 7.9 days, the difference being statistically significant (p=0.002). Additionally, patients operated by means of Limberg’s method obtained lower VAS scale values, 1, 3 and 5 days after surgery. A statistically significant difference concerned the 5-th postoperative day (p=0.007). The authors believe that these differences result from the fact the Limberg’s technique ensures wound closure by means of smaller tension, as compared to Karydakis’s technique (23).

In a study comparing patients operated by means of Limberg and Bascoma techniques, no differences were observed, considering postoperative pain using the VAS scale. However, a difference in the quality of life was observed, measured by means of the SF-36 questionnaire on the tenth day after the operation, considering physical pain and physical functioning, in favor of the Bascoma technique. After 30 days and re-evaluation we observed no differences in the quality of life between both groups (25). No differences in both groups, considering pain, measured by means of the VAS scale was presented by Muzi et al. (26). The use of Limberg’s technique is not associated with increased pain or demand for analgesics. One may also observe that the above-mentioned group returns to everyday activities much faster, as compared to patients operated by means of other techniques (21). Considering our patient group we observed no increased demand for analgesics. The resulting low value assessment of pain after surgery, based on the VAS scale is evidence that the above-mentioned procedure is not associated with significant pain, which was confirmed in literature data (tab. 1). Approximately, patients returned to everyday activities after two weeks.

The use of a skin flap according to Limberg’s method after pilonidal cyst excision in the area of the sacrum is a good method, with a low recurrence and complication rate. Rapid return to everyday activities, lack of significant pain, and acceptable cosmetic effect are arguments in favor of the above-mentioned method. Further evaluation of
results considering the method requires a greater number of patients and longer observation period. Initial observations and experience allow to recommend the method to all involved in the management of pilonidal cysts around the sacrum.

REFERENCES


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