



ISSN: 2395-6429

## A NEW FLAP TECHNIQUE IN SURGICAL TREATMENT OF PILONIDAL SINUS DISEASE BIPEDICULAR MEDIAL ADVANCEMENT FLAP

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### ARTICLE INFO

#### Article History:

Received 19<sup>th</sup> February, 2017  
Received in revised form 4<sup>th</sup>  
March, 2017  
Accepted 9<sup>th</sup> April, 2017  
Published online 28<sup>th</sup> May, 2017

#### Key words:

Pilonidal Sinus Disease,  
Advancement Flap, Surgical  
Technique

### ABSTRACT

**Purpose:** The aim of our study is to define a new flap technique for surgical treatment of sacrococcygeal pilonidal sinus disease, "bipedicular medial advancement flap" and to report our results.

**Materials and methods:** The findings of 61 patients who underwent surgery with the cause of pilonidal sinus disease and applied "Excision and bipedicular medial advancement flap" in Sarıkamış state hospital were retrospectively analyzed. Results: Sixty-one patients were included in the study: 10 female (16.4%) and 51 male (83.6%). All of the patients underwent bipedicular medial advancement as a surgical procedure. The mean duration of operation was  $29 \pm 6$  minutes (19-44 minutes). It was found that 18% of the patients (11 patients) were using cigarettes. In none of the patients, hematoma, suture dissection, seroma and flap necrosis were observed in the early period. The mean follow-up period was  $48 \pm 28$  months (1-76 months). The mean duration of hospital stay was  $2.3 \pm 1$  days (1-6 days) and the mean time to return to normal life activities ( $14.2 \pm 3$  days).

**Conclusion:** Compared with the LF and V-Y flap applications commonly used in the treatment of pilonidal sinus disease, the bipedicated medial advancement flap with low recurrence - complication rates and return to short normal life activities, appear to be a feasible flap method for the surgical treatment of pilonidal sinus disease.

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### INTRODUCTION

Sacrococcygeal pilonidal sinus disease (PSD) is often referred to as chronic inflammation of natal cleft, which is more common in young adults. Although the etiology was not precisely defined, it was initially described as a congenital disease, but it became more conceivable that it was an acquired disease in subsequent investigations (1, 2). Clinical findings are usually pain, swelling and discharging from the sinuses. Although there are many treatment methods, the most effective treatment is the surgery. The main principle of treatment is prevention of recurrence and returning the patient to normal life as soon as possible. The reason for high recurrence rates is that there is no ideal treatment (3, 4). Recent studies show that the results of flap repair techniques are better (5, 6). Several flap techniques have been described in the treatment of pilonidal sinus disease. These include Z-plasti, W-plasti, V-Y advancement flap, rhomboid flap, gluteus maximus myocutaneous flap, and fasciocutaneous rotation flaps (7).

Complications such as wound separation, hematoma, flap necrosis, seroma have been defined in flap applications.

In our study, we aimed to describe the bipedicated medial advancement flap technique in pilonidal sinus surgery and to report our results.

### MATERIALS AND METHODS

Sixty-one patients who applied to the general surgery clinic of Sarıkamış State Hospital between 2011-2017, who had pilonidal sinus disease and underwent surgery and received bipedicate medial advancement flap, were included in the study. Patient files were reviewed retrospectively. The date of operation, age, gender, presence of hematoma, suture separation, necrosis, presence of seroma, duration of operation and returning to normal life were recorded. Post-operative control findings of the patients were recorded. Written proofs were taken from the patients before operation. The demographic characteristics of the patients are shown in table 1. Descriptive statistics were made with the SPSS 22 program.

#### Surgical Method

The patients were admitted to the hospital the day before the operation. All of the patients were subjected to spinal anesthesia. After spinal anesthesia, the patient was placed in prone jackknife position. Gluteus was traced to the intergluteal sulcus with the help of large patches adhered to the edge of the

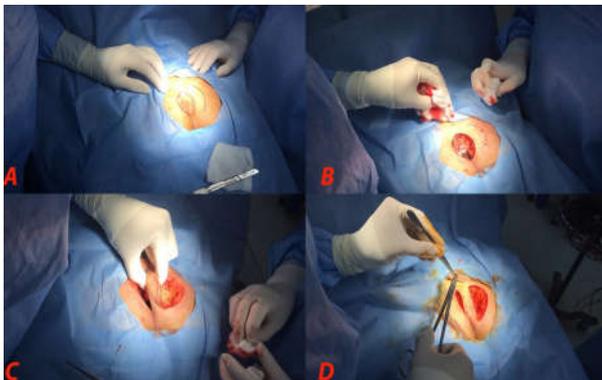
surgical table. Operation area hair removal was done in the operating room. The operation site was cleared at least three times with polyvinyl iodine. To prevent possible contamination to the anal region, agauze soaked with polyvinyl iodide was placed. All the patients were treated prophylactically 1 g cephalosporin sodium iv 30 minutes before operation.

**Table 1** Clinical Findings of the patients

Preoperative and postoperative clinical findings of patients	
Number of patients	Kadın 10 (%16.4) Erkek 51 (%83.6)
Age ( Mean )	25±7 ( 15-52 )
Operation duration ( min. )	29±6 ( 19-44 )
Hematoma	0 ( %0 )
Suture separation	0 ( %0 )
Flap necrosis	0 ( %0 )
Seroma	0 ( %0 )
Mean follow-up ( month )	48±28 ( 1- 76 )
Mean Hospital stay ( day )	2.3±1 ( 1-6 )
Mean time to return life activities ( day )	14.2±3
Recurrence	0 ( %0 )

### Operation Technique

The areas to be incised were marked with marking pens (Figure A). A skin incision was made in romboidal way to cover the sinuses. In the guidance of the skin incision, tissue excision was performed to descend to the presacral fascia, leaving no sinus tract. The presacral area was irrigated with 70% hydrogen peroxide and rifamycin ampoule. At the right gluteal area, a skin incision was performed parallel to the incision line (Figure B). The incision was advanced to the gluteus maximus muscle and the flap was released through the gluteal muscle (Figure C). After bleeding control, the intergluteal sulcus-opening patches were released. The free side of flap was fixed with 2.0 polyglactin in presacral fascia and the skin was sutured with 3.0 polypropylene (Figure D). The right gluteal defect was closed with 3.0 polypropylene as primery. Drain was not used in patients (Figure E). Oral uptake of the patients started at 4 hours after the operation, and the patient was mobilized on the 1st day. They were recommended not to sit for ten days. Intravenous hydrations and antibiotics, (2 doses of cefazolin sodium 1 g daily) continued until the 2nd postoperative day. Sutures of all patients were taken on day 20. Sutures of all patients were taken on postoperative twentieth day.



**Figure 1** Operation Technique

### Findings

Sixty-one patients were included in the study: 10 female (16.4%) and 51 male (83.6%). Bipediculous advancement flap was applied to all of the patients as a surgical procedure. The mean age of the patients was  $25 \pm 7$  (15-52 years). The mean duration of operation was  $29 \pm 6$  minutes (19-44 minutes). There was no mortality after operation and after operation. It was found that 18% of the patients (11 patients) were using cigarettes. In none of the patients, hematoma, suture dissection, seroma and flap necrosis were observed in the early period. The mean follow-up period was  $48 \pm 28$  months (1-76 months). The mean duration of hospital stay was  $2.3 \pm 1$  days (1-6 days) and the mean time to return to normal life activities was  $14.2 \pm 3$  days. No recurrence was observed during the mean follow-up period of 48 months.

### DISCUSSION

The ideal treatment for pilonidal sinus disease should provide minimal tissue loss, minimal postoperative morbidity, good cosmetic results, rapid return to daily living activities, low cost and low recurrence rates (8). Although many medical and surgical treatment methods have been described, no treatment method alone satisfies these characteristics. Excision of the infected tissue and sinuses does not show any significant differences in the defined surgical techniques and does not pose a significant problem. The main problem here is how to close the defect after excision. Leaving the secondary to healing leads to a slow and costly healing process. And the late return to the normal life activities (9). Primer closure leads to a rapid recovery process and rapid return to normal life activities, accompanied by high complication rates and recurrence rates (3, 10). On the light of these, flapping techniques have become an important option in the treatment of flattening gluteal sulcus, tension-free tissue healing, short recovery time and early initiation of daily living activities, good cosmetic results and low recurrence rates (11).

In limberg flap ( LF ), which is one of the most common flap application techniques, wound infection, seroma, wound dissection, flap necrosis and recurrence rates were reported respectively 0.8-7.6%, 1.5-5.2%, 0-4.1%, 0-3% and 1.2-4.9% ( 12-3, 11-13 ). The V-Y flap technique, another common flap application technique, was first described by Khatri *et al* in 1994 (14). After the V-Y flap application, wound infections, seroma development, wound separation and recurrence rates were reported as 0-6.7%, 0-8.5%, 0-18.1% and 0-11.1%, respectively, in the literature. In our series, similar to the literature, wound infections, seroma, wound separation, flap necrosis and recurrence were not detected within approximately 48 months follow-up. Considering the affected age group and gender, the early conversion to daily life activities is more important than the recurrence rates (1). The time to return to daily life activities was reported as 12.4-18.8 days in patients with LF technique ( 11-14, 13-15 ), and 14.4-28 days in patients treated with V-Y flap technique ( 16, 17, 18 ). In our series, the time to return to daily life activities in patients with bipedical medial advancement flaps was 14 days (7-20 days), which is shorter than the most commonly used flap methods described in the literature.

In the meta-analysis by Horwood *et al.*, the mean hospitalization time of the LF-treated patients was reported to be 3.5 days (19). In our study, the average length of hospitalization in the hospital was 2.3 days (1-6 days). When

the durations of the operations were examined, the mean duration of operation was reported as 68 minutes (52-77 minutes) in the study in which the present invention reported the early results of patients who applied rhomboid excision and LF (20). In our study, the average duration of operation was 29 minutes (19-44 minutes).

## CONCLUSION

Advantages of the bipediculated medial advancement flap; flattening of the gluteal sulcus can be considered, the short duration of operation, despite the fact that being a random flap it has a good flap feeding by means of two pedicles. The problems we encountered with the LF and V-Y advance flap are especially seen in the distal parts of the flap where blood flow is less. In the bipediculated medial advancement flap, there is no distal portion of the flap. For this reason, we can predict that the risk of complications of necrosis is lower than that of LF and V-Y advance flap. As the number of patients is inadequate and need for comparative studies, compared with the LF and V-Y flap applications commonly used in the treatment of PSD, the bipediculated medial advancement flap seems to be a feasible flap method with low recurrence and short time to return to normal life activities. There is no conflict of interest.

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