The V-Y flap technique in complicated and recurrent pilonidal sinus disease

Ann. Ital. Chir., 2018 89, 1: 66-69
pii: S0003469X18027707

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OBJECTIVES: *This study presents early and long term (5 years) outcome of 61 complicated pilonidal sinus disease cases undergoing V-Y advancement flap method together with the literature data.*
METHOD: *Data of 336 patients undergoing surgery for pilonidal sinus disease between 2008 and 2012 were retrospectively analyzed. Patients with defect size ≥ 10 cm, and more than one subcutaneous sinus tunnels were assumed to have complicated pilonidal sinus disease. A total of 61 patients were included in the study. Age, gender, type of surgery, duration of hospitalization, time of drain removal, pre-operative complications, and relapse rates at post-operative 5th year were analyzed.*
RESULTS: *Of the 66 patients, 51 underwent unilateral V-Y advancement and 10 patients had bilateral V-Y plasty. Mean duration of operations was 66.87±18.37 minutes for total, 61.02±12.30 minutes for unilateral V-Y plasty, and 96.70±15.04 minutes for bilateral V-Y plasty. Hemovac drains were removed at 5.59±1.91 days averagely, 5.16±1.37 in unilateral group, and 7.80±2.74 in bilateral V-Y plasty group. Of the 4 patients who developed wound site infection, 2 had unilateral and 2 had bilateral V-Y flap advancement. Postoperative hematomas developed in 2 patients with unilateral flap and one patient with bilateral flapss. Seroma occurred in 2 patients with unilateral flap and one patient with bilateral flaps. Dehiscence developed two patients, one patient from each group. The mean duration of hosptalization was 5.98±2.21 days; 5.49±1.52 in unilateral group, and 8.50±3.34 in bilateral group. Early or late relapse was not seen in any groups.*
CONCLUSION: *V-Y advancement flap technique can be applied as an efficient method in the treatment of complicated pilonidal sinus disease due to low relapse and complication rates.*

KEY WORDS: Advancement flap, Complicated pilonidal sinus, Pilonidal sinus, V-Y flap

Introduction

Pilonidal sinus disease (PSD) is considered to develop due to penetration of hair shafts into the natal cleft. The most common site involved is the sacrococcygeal region. It usually manifests with sinus tracts, infection and abscess around the intergluteal cleft. It typically affects young men [1]. Surgical primary excision and marsupialization in uncomplicated cases, and various repairing procedures including flaps for complicated sinuses were proposed.
However, recurrent PSD currently poses a problem at varying rates. Moreover, extended portions of skin is affected due to multiple sinus tracts caused by attacks of infection and abscess. Excision of the unhealthy area and closure is more difficult in these individuals [2,3].
V-Y advancement flaps are methods used frequently for closure of several skin defects of the body. It is also used for closure of large defects in management of PSD. The flap may be administered unilaterally or bilaterally according to the size of the resected area [4].

Pervenuto in Redazione Agosto 2017. Accettato per la pubblicazione Ottobre 2017
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We investigated the rate of complicated pilonidal sinuses, and advantage and disadvantages of V-Y flap advancement technique for closure of excisional defects of PSD.

Patients and Methods

We retrospectively analyzed the data of 336 patients who underwent surgery for PSD between 2008-2012.Patients whose defect size was above 10 cm and who had more than one subcutaneous sinus tunnels were considered as complicated PSD. Age, gender, surgical procedure, duration of hospitalization, time to removal of drain, pre- and post-operative complications, and recurrence rates were assessed.
Defects above 10 cm in size were all treated with V-Y flap advancement technique. One gram of cefazolin sodium was given intravenously prior to surgery to all patients on whom V-Y plasty was performed. All operations were carried out under spinal anesthesia at jack-knife position. Unilateral or bilateral V-Y flap advancement was performed according to size of the defective area and localization of pilonidal sinuses. Hemovac drains were placed to all patients and removed when the volume was lower than 15 cc. Patients were mobilized on the first postoperative day. The stiches were removed at postoperative 13rd day and control visits were scheduled on postoperative 30th day. All patients included were called by telephone at 60th month and the existence of relapse was investigated with physical examination.

V-Y Flap Advancement Techn que

All affected skin and pilonidal sinus tract was resected cutting an elliptical incision to gluteal area (Fig. 1). The corners of the ellipse was extended to lateral with a V incision forming a skin flap and closed with a Y (Fig. 1).

Fig. 1: Complicated sinus pilonidal.

Fig. 2: Complicated sinüs excised and prepared skin flap.

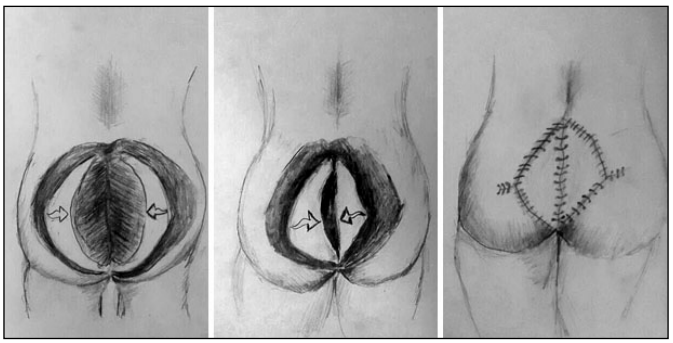

Fig. 3: V-Y shaped sutured skin.

Defects sized about 10 cm were repaired with unilateral flaps while defects sized over 10 cm were closed with bilateral V-Y plasty. Flaps constituted of skin, subcutaneous fat tissue and gluteal fascia (Fig. 2).

Stat st cal Analys s

SSPS 21 pocket program was used for data analysis.

Results

The study included 61 patients who underwent surgery for PSD between 2008-2012. Of the patients, 52 (85.2%) were men, and 9 (14.8%) were women. While all women had unilateral flaps, 10 men had bilateral flaps. The mean age was 22.54±5.25 years. Twenty one patients were operated due to relapse, and 40 had complicated pilonidal sinuses. Totally 51 patients underwent unilateral V-Y advancement and the remaining 10 patients had bilateral V-Y plasty. Mean duration of operations was 66.87±18.37 minutes for total, 61.02±12.30 minutes for unilateral V-Y plasty, and 96.70±15.04 minu-

tes for bilateral V-Y plasty. Hemovac drains were removed at 5.59±1.91 days averagely, 5.16±1.37 in unilateral group, and 7.80±2.74 in bilateral v-y plasty group.
Wound site infection occurred in 4 patients, 2 had unilateral and 2 had bilateral V-Y flap advancement. Postoperative hematomas developed in 2 patients with unilateral flap and one patient with bilateral flaps. Seroma occurred in 2 patients with unilateral flap and one patient with bilateral flaps. Dehiscence developed in two patients, one patient from each group. The mean duration of hospitalization was 5.98±2.21 days; 5.49±1.52 in unilateral group, and 8.50±3.34 in bilateral group. Early or late relapses were not seen in any groups.

Discussion

PSD is considered to commence after plantation of the body hair into the sacrococcygeal mildine. Pine-tree like structure of the hair and one-way marching ability with the help of friction proceeds the disease. After placing beneath the skin, the hair induce a foreign body reaction resulting in a mass acccompanied by inflammation. The inflammatory focus leads to recurrent abscess and non-healing infected discharge if contaminated with bacteria. The abscess may develop a fistula to the skin a while later. Then complicated PSD arises that affects a greater area [5-7].
Surgical excision of sinuses and closure of the defect primarily or with various flap techniques is the main treatment strategy. The relapse rate of the disease is 0-40% [4,8-10].
Recurrent or complicated sinuses require excision of a broader area to avoid tension due to scarring. The most important obstacle is closure of the defect that necessiates multiple and wide reconstruction. Various flap advancement techniques have been used. Most common methods are Z plasty, W plasty, rhomboid, Dufourmental, Limberg, V-Y advancement flaps, gluteal fasciocutaneus flap, and rotational skin flaps. The patients may benefit from either of these techniques [11,12].
All patients included in this study were recurrent or complicated PSD cases. When sinuses were resected with some healthy surrounding tissue, the defect size reached over 10 cm.
V-Y advancement flaps are generally preferred for complicated PSD cases. Flaps constitute of the skin, subcutaneous tissue, and the gluteal fascia. While unilateral flaps cover defects up to 10 cm, greater defects require bilateral V-Y flaps [10,13].
The main complications following this method are seroma (0-8.5%), wound infection (0-6.7%), dehiscence (0-18.1%), flap necrosis, and relapse (0-1.1%). Especially in studies that compared V-Y plasty to Limberg flap techniques, it was concluded that V-Y flap advancement had lower complication rates. The possible mechanisms were reported as less amount of tissue mobilized and dissected, and the repair without tension. Moreover; complete resection of the unhealthy region and ruling the gluteal cleft out provides low recurrence rate [14-16.]
The mean duration of hospitalization and time to return to work for patients undergoing V-Y advancement surgery are 6-7 days and 21 days respectively. The periods are relatively long compared to other methods. The reason is the greater defect size and the greater volume of tissue resected in V-Y plasty [4,18].
The complications in our study were seroma in 3 patients (4.9%), flap necrosis in 3 patients (4.9%), and dehiscence in 2 patients (3.2%). No relapse was detected in 5- year follow up. These values are in accordance with the literature data.
Consequently; this study reveals that defects above 10 cm may be closed easefully with V-Y flap advancement method in the management of complicated PSD. This simple technique also has lower relapse and complication rates.

Riassunto

Lo studio si riferisce ai risultati a breve e lungo termine (5 anni) di 61 pazienti affetti dalla malattia del sinus pilonidalis e trattati chirurgicamente col metodo del lembo V-Y, con riferimenti della letteratura.
Sono stati raccolti ed alalizzati retrospettivamente i dati di 336 pazienti operati per malattia del sinu pilonidalis tra il 2008 ed il 2012, considerando complicati quelli con difetto ≥ 10 cm, e con più di un tunnel sottocutaneo, includendo quindi nello studio 61 pazienti.
L'analisi si riferisce ad età, sesso, tipo di interveto chirurgico, durata del ricovero, tempi di asportazione del drenaggio, compklicanze preopeartorie e incidenza di recidiva a 5 anni.
51 dei 61 pazienti sono stati trattati con avanzamento unilaterale di lembo V-Y e 10 con plastica bilaterale. La durata media dell'intervento è stata in totale di 66.87±18.37 minuti: 61.02±12.30 minuti in caso di lembo V-Y unilaterale e 96.70±15.04 minuti per la plastica bilaterale.
Il drenaggio aspirativo è stato rimosso in genere in 5.59±1.91 giorni; 5.16±1.37 nel gruppo di plastica unilaterale e 7.80±2.74 nel gruppo della plastica bilaterale. Dei 4 pazienti con successiva infezione della ferita, 2 erano stati sottoposti a plastica monolaterale e 2 bilaterale. In 2 pazienti con plastica monolaterale si è sviluppato un ematoma postoperatorio, ed in uno con plastica bilaterale. In 2 pazienti con plastica monolaterale si è sviluppato un sieroma postoperatorio, ed in uno con plastica bilaterale. La deiscenza della sutura si è avuta in un paziente di ciascun gruppo.
La durata media del ricovero è stata di 5.98±2.21 giorni; 5.49±1.52 nel gruppo monolaterale e 8.50±3.34 nel gruppo bilaterale. In nessun gruppo si è avuta recidiva precoce o tardiva.

In conclusione la tecnica del lembo V-Y può essere adottata come metodo efficace nel trattamento della malattia del sinus pilonidalis complicata grazie al basso tasso di recidiva e di incidenza di complicazioni.

Acknowledgment

This article was presented as an oral presentation 20. The Turkish national surgery congress. Antalya, Turkey

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