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WIDE EXCISION AND RHOMBOID FLAP RECONSTRUCTION FOR TREATMENT OF COMPLEX PILONIDAL DISEASE. CASE SERIES AND REVIEW OF LITERATURE.

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Abstract

Introduction: Pilonidal disease a chronic inflammatory disorder affecting the sacrococcygeal region with superimposed infection. This problem can present with acute abscess or chronic discharging sinus and often difficult to treat due to high incidence of recurrence.

We are presenting our case series of wide excision and rhomboid flap reconstruction of complex pilonidal sinus disease.

Methods: This is a retrospective review of our series of patients who have had rhomboid flap reconstruction done in colorectal surgery department for complex pilonidal sinus disease. The time period between is 2003 to 2017. The review was conducted from our electronic data base in our hospital.

Results: We had 50 patients in total. 30out of 50 have had previous surgery for pilonidal sinus disease. Five patients developed recurrence (10% recurrence rate). 4 out of 5 patients who had recurrence were smokers.4 out of 5 patients with recurrence had previous surgery for pilonidal disease. The median age of the patients was 28.The age ranged from 16 to 49 years. The median length of stay is about 4 days

Conclusion: In conclusion Rhomboid flap reconstruction is a viable operation for complex pilonidal disease. The long term results are good. It can be safely performed by a general /colorectal surgeon with good results. It is a good option for complex pilonidal sinus and recurrent disease following multiple previous operations. The recurrence rate seems to be higher in smokers and in patients who had previous surgery in natal cleft.

Introduction

Pilonidal disease a chronic inflammatory disorder affecting the sacrococcygeal region with superimposed infection. This problem can present with acute abscess or chronic discharging sinus and often difficult to treat due to high incidence of recurrence.

We are presenting our case series of wide excision and rhomboid flap reconstruction of complex pilonidal sinus disease.

Methods

Registration and ethics

There is no need for ethics approval for this retrospective case series. The study is enrolled in public date base

Study design

This is a retrospective case series performed in a single centre in UK (West Suffolk Hospital)

All patients who had wide excision and rhomboid flap reconstruction from 2003 to 2017 are included. In our unit we do incision and drainages for acute pilonidal abscesses. If they come with pilonidal disease we will make decisions depending on severity of the disease.

For simple disease we do Bascom's operation.

There is a group of patients with recurrent disease after I&D or bascom's operation, complex pilonidal disease with multiple pits affecting a large area in the natal cleft. These patients will need radical excision and reconstruction. We reserve the Rhomboid flap reconstruction for these patients.

We advise them to stop smoking if they are smokers before surgery. The operation involves general anaesthetic. They will be in prone jack knife position. The natal cleft area is shaven and cleaned before surgery. Buttock straps are applied on either side to have good exposure.

The flap is measured and marked with the strap on.

Rhomboid flap reconstruction of pilonidal sinus disease

We mark the flap with marker pen as follows

- Place two dots cranial and caudal extent of the disease in the midline

- Mark the midpoint of the initial cranio caudal line
- Measure this length (say it is 10cms)
- Multiply it with 0.6(6cms)
- Draw 6cm line through the midpoint (3cm on either side)
- Join all the dots to form rhomboid around the area with the disease
- Make a straight 6cm line from one of the lateral edge of the rhomboid (either right or left side)
- Make another 6cm line parallel to the lateral slope of the rhomboid

The area within the marked rhomboid is excised completely up to the fascia. Complete haemostasis secured with diathermy (we try to keep the diathermy use as minimal as possible). We use sharp dissection with knife with very minimal use of diathermy.

Then the marked flap is raised. This is a fascio-adipo cutaneous flap. The fascio adipo cutaneous flap is raised along with the gluteal fascia. Once it is completely mobilized it is repositioned into the defect caused by wide excision. The flap is secured with subcutaneous interrupted 2-0 Vicryl stitches. Redivac suction drain is placed below the flap. Skin approximation is done using interrupted 4-0 nylon.

We cover the wound with gelonet, blue gauze and apply sticky cover on top.

We encourage patients to be in bed rest for 24hrs and lie in lateral position. They can mobilise to the toilet after 24 hrs.

On the 4th postoperative day we remove all the dressings and inspect the flap. If the flap looks ok the drain will be removed and the patients are discharged.

The nylon sutures are removed by the practice nurses after 10days.All patients attend the follow up clinic in about 6 weeks. Patients with wound issues or complications were followed up in regular intervals. If the flap is healthy patients were discharged from the clinic. The patients with recurrent disease have come back to our clinic for further assessment and managent. We got all the data from electronic hospital records retrospectively. The follow up period is between 2 to 15 years.

Results

The total number of cases done from 2002 to 2017 done by a single consultant is 50

Male 44

Female 6

Out of these 50 patients about 30 has had previous surgery for pilonidal sinus disease. The nature of surgery varied from incision and drainage to simple excisions and Karydakis flap.

23 were smokers

One patient had diabetes

4/50 patients developed complications. The complications include 1 flap necrosis. That patient required further debridement and plastic surgery input. The other 3 were minor complications (one excess granulation, one infection & abscess formation and one minor wound problem without flap necrosis.

Five patients developed recurrence.10% recurrence.(1 female and 4 males).4 out of 5 patients who had recurrence were smokers.4/5 patients with recurrence had previous surgery for pilonidal disease(two Karydakis flaps,1 Bascoms and one incision and drainage)

The median age of the patients was 28.The age ranged from 16 to 49 years.

The median length of stay is about 4 days. Except for the patient with flap necrosis all the other patients went home on day 4 or 5.

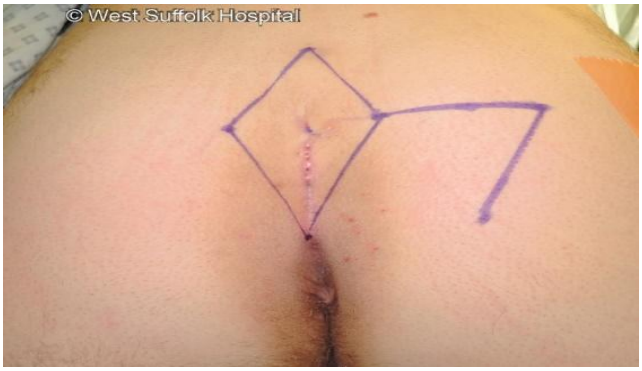

Figure 1: Skin Mark Rhomboid

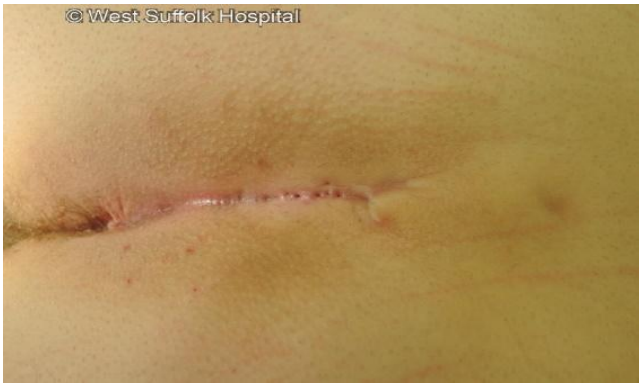

Figure 2: Complex Pilonidal Disease

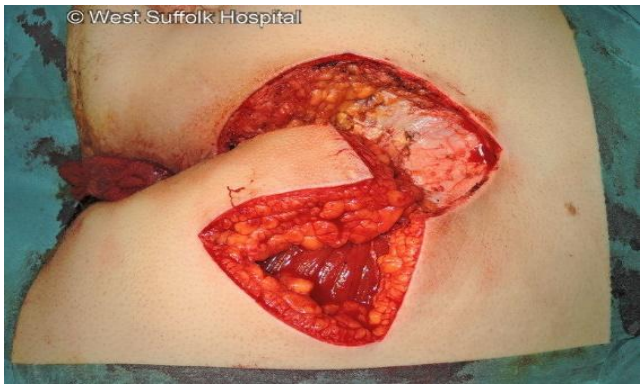

Figure 3: Wide excision with flap raised

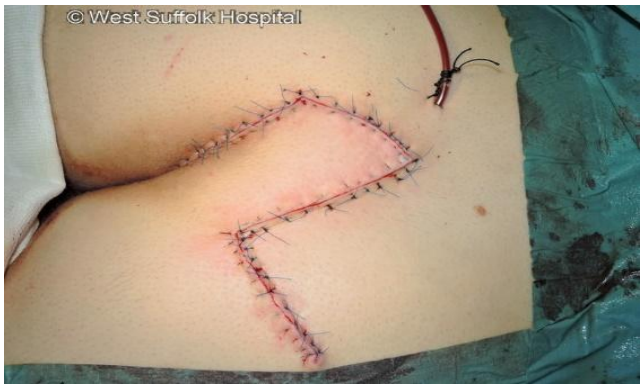

Figure 4: End Result

Discussion

Pilonidal disease a chronic inflammatory disorder affecting the sacrococcygeal region with superimposed infection. It is commonly seen in young adults and usually presents as an abscess or a painful sinus tract in the natal cleft with seropurulent discharge[1]

The disease was originally thought to be congenital, due to the failure of fusion in the dorsal midline resulting in entrapment of hair follicles in the sacrococcygeal region. Recent research and findings favour acquired etiology.

The occupation may play a role. Interestingly, pilonidal disease has been reported in sheep shearers, dog groomers, cow milkers, and barbers between their fingers.[2]

The acquired theory is further supported by Bascom who notes that hair follicles in the gluteal cleft become infected with keratin resulting in local infection and abscess formation while local suction forces cause hairs to enter the infected pit and lodge in the abscess cavity.[3]

The hair causing the problems can be from the local area or loose hair from somewhere else collecting in the natal cleft

Pilonidal disease (PD) is a common disease of young adults that occurs 2 to 3 times as frequently in men as in women, with an incidence of nearly 25/100.000 [4,5]

A hirsute body habitus, a deep gluteal cleft, obesity, smoking, a sedentary lifestyle, a lack of hygiene and previous familial history have been suggested as predisposing factors[6]

The pilonidal disease can present acutely with abscess in the natal cleft. It can also present as Pilonidal disease with constant discharging sinuses with intermittent infective exacerbations which settles down with or without surgical drainage

The differential diagnosis of pilonidal disease includes perianal abscess extending into the natal cleft, hidradenitis, and low anorectal fistula such as seen in Crohn's disease. Therefore a careful perianal examination should be performed before deciding on the treatment options.

In acute Pilonidal Abscess most patients present initially with pain, tenderness, swelling, and erythema in the gluteal cleft with or without drainage from the involved area. Primary pits may be visible in the midline of the gluteal cleft; however, they are often obscured. If observed, the diagnosis of pilonidal disease is supported. Secondary tracts or pits off the midline occur with multiple complex sinuses leading to secondary openings.

Chronic Pilonidal Abscess/Draining Sinus Tracts is essentially a chronic pilonidal sinus cavity with recurrent drainage due to retained hair and infected residue. It may be difficult to recognize the sinus pits in the presence of acute inflammation and swelling[7]

Conservative management

Keeping the area hair free has got preventive and therapeutic importance. Shaving hair surrounding the gluteal cleft has been emphasized in many reports. A 3- to 4-cm area around the diseased segment should be shaved[8,9]

Laser depilation has been investigated as a possible adjunct to pilonidal disease surgery. It can cause local pain[10] Now a days it is funded in NHS (requires approval).

Operative Treatment

The operative treatment will depend on the stage of the disease. Acute abscesses require incision & drainage. Minimal disease can be dealt with selective excision of the pits. Extensive disease will require wide excision and flap reconstruction. The main aim of all the flap procedures is to get rid of the midline cleft.

Rhomboid flap

It involves radical excision of pilonidal sinus disease which involves rhomboid shaped excision for skin and soft tissue along with the pilonidal disease up to the sacral periosteum and reconstruction of the defect with rotational advancement flap. It is an Adipo fascio cutaneous flap and it contains part of gluteal fascia. The flap is constructed by extending the incision laterally and down to the fascia of the gluteus maximus muscle. The flap should be exactly of the same angles and length of the defect made by the excision. The flap is transposed into the rhombic defect without tension

The recurrence rate for this procedure is quoted between 1 to 10%[11-15]

The largest series was reported by Akin et al who had a recurrence rates of 2.91% on a series of 411 patients[11] The smallest series was by El-khadrawy who reported 10% recurrence out of 40 patients[15] Aslam et al had lowest recurrence rate of 1% out of 110 cases [14]

In our series of 50 patients 5 had recurrence (10%).Form our series the recurrence seem to be more common in smokers.4/5 patients with recurrence were smokers.

The recurrence is also noted more frequently in patients who had previous surgical intervention for pilonidal sinus disease.4/5 patients with recurrence in our series had previous surgery to the natal clef in our series.

There are 2 other flap procedures that are commonly performed for complex pilonidal disease. They are Karydakis flap and Bascom cleft lift

The potential complications of this procedure include minor wound infection, seroma, excess granulation, and skin necrosis(varies from part necrosis to full necrosis of the flap).1/50 patients had flap necrosis requiring further procedures.3/50 of our patients had minor complications including one excess granulation tissue formation, one small abscess formation in a corner of the flap which required incision and drainage and one patient had minor wound problem which got better without intervention.

Other flap procedures

Karydakis Flap

Karydakis used an asymmetric excision and primary closure to prevent hair penetration into the natal cleft. In the Karydakis series, less than 1% of over 5000 patients, followed over 20 years, developed recurrence. The wound complication rate approximated 9%[16]

Bascom clef lift (BASCOM II)

Bascom cleft lift (BASCOM II) is another flap procedure for complicated pilonidal sinus disease. The goal of this procedure is to completely eliminate the gluteal cleft in the diseased area Bascom reported complete wound closure with the cleft lift procedure in 30 patients who previously had failures with other operations. There was only one recurrence at 2 years[17]

Conclusion

In conclusion Rhomboid flap reconstruction is a good operation following wide excision of complex pilonidal disease. The long term results are good. It can be safely performed by a general /colorectal surgeon with good results. It is a viable option for complex pilonidal sinus and recurrent disease following multiple previous operations. The recurrence rate seems to be higher in smokers and in patients who had previous surgery in natal cleft.

Ethical approval

No ethical approval was required.

Author contribution

Thomas Athisayaraj - Concept and design, data collection, data interpretation and analysis, revision and approval of final manuscript; Boby Sebastian-MRB drafting of the manuscript, data collection, revision and approval of final manuscript; RF, KK, & AF, data collection, revision and approval of final manuscript; Justin Alberts - Design of study, revision, approval of final manuscript.

Research registration number

N/A – this was not a human study.

Guarantor

Thomas Athisayaraj

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