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A Case Report On Surgical Reconstruction Of Pilonidal Sinus (Nadi Vrana) Defects Using Rhomboid Flap

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Abstract

Pilonidal sinus disease is a chronic granulomatous condition characterized by the presence of hair embedded within the subcutaneous tissue, leading to persistent infection and inflammation. The condition is often described as "nests of hair" due to its pathognomonic appearance . In classical Ayurvedic literature, Shalyaj Nadi Vrana described in the Sushruta Samhita bears a close resemblance to pilonidal sinus in both clinical presentation and management approach. Conventional surgical management typically involves excision of the sinus tract followed by primary closure; however, this method carries a considerable risk of postoperative wound infection, delayed healing, and recurrence, often resulting in prolonged hospitalization . In contrast, rhomboid flap reconstruction has been shown to minimize recurrence rates and postoperative complications while enabling faster recovery and improved wound healing. This is case report of 20 years old male patient complaint of painful swelling at intergluteal cleft since 4 month and Blood stain pus discharge from lesion since 4 month with fever on& off & difficulty in sitting. Patient not given any previous history of surgical intervention. This patient underwent Rhomboid flap reconstructive procedure. Patient wound was healed primarily with minimal scarring and less postoperative pain, no flap necrosis, no seroma formation .

Keyword – Pilonidal sinus , Rhomboid Flap Reconstruction ,Shalyaj Nadivrana

Introduction

Pilonidal sinus disease is a chronic infection typically found in the sacrococcygeal area between the buttocks. It consists of an epithelial-lined sinus tract that frequently contains hair, debris, and purulent material[1] . The condition predominantly affects young, hirsute males, with an estimated incidence of about 26 cases per 100,000 population[2] . The most accepted theory for its development is the penetration of loose hair shafts into the skin, causing a foreign-body reaction and subsequent infection[4] .

A similar condition has been documented in classical Ayurvedic texts as Shalyaj Nadi Vrana, described in the Sushruta Samhita . Acharya Sushruta proposed para-surgical treatments such as Kshar Sutra therapy—a minimally invasive technique involving medicated thread application for gradual excision and healing—as

well as Chedan Karma (excision) for persistent tracts [5].Various surgical techniques are available for the management of pilonidal sinus, including open excision, primary closure, and flap reconstruction. Flap procedures, such as the Limberg or Karydakis flap, are preferred due to their effectiveness in flattening the natal cleft, thereby reducing recurrence, sweating, and hair accumulation [4].

These methods achieve a tension-free, well-vascularized closure that promotes optimal healing and minimizes postoperative complications. This article contains a case report of a 20 year male patient who is chasier in hotel & diagnosed with pilonidal sinus came to OPD of shalyatantra presented with chief complaint of painful swelling in intergluteal cleft since 4month pus discharge from lesion since 4 month, fever on & off & difficulty in sitting

Present history-

Patient is asymptomatic before 4 month then he noticed Swelling in the intergluteal cleft, varying in size from a ping-pong ball to a cricket ball. Pain associated with the swelling, described as throbbing in nature. Pain increases with swelling size and decreases when the swelling bursts with discharge of pus and blood .Mild fever without chills, associated with increased swelling size .Then patient consulted a doctor & got temporary relief after taking medication but did not experience lasting relief then patient came to opd department of shalyatantra for futher management

Past history

No any significant history

Family history

No any relevant family history found

General Examination

PR- 80 /min

BP-130/80 mmHg

SPO2-98%

Temp-100°F

Personal History

Diet -Mixed diet

Bowel- Regular

Bladder- Regular

Sleep-8- 9 in 24 hour

Appetite- good

Addiction- No addiction

Physical Examination-

Average built, no clubbing/cyanosis/icterus, no any lymphadenopathy observed.

Systemic Examination-

Respiratory System Bilateral air entry- Normal

Cardiovascular System S1, S2 – Normal

Central Nervous system -Conscious and well oriented

P/A – soft & NT

Local Examination

A small sinus opening at intergluteal region

Pus discharge through opening

Linear 3cm fibrous track palpable from intergluteal cleft with small swelling & tenderness over sinus track

Lab Investigation

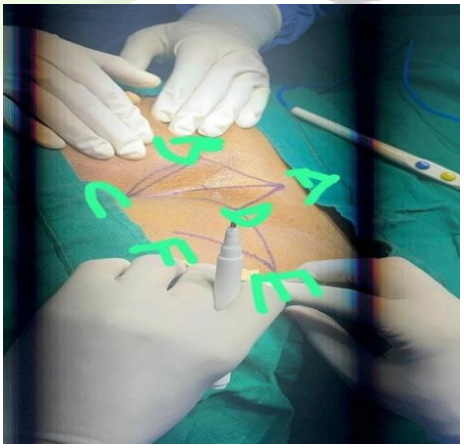
Hb- 11.7 GM% TLC – 7100/cumm P-66% L-30% E-02% M-02% B-0% Platelets – 197000/cumm BSL(R)-76 mg/dl Sr. creatinine -1.4mg/dl

HIV -Negative ,HBsAg & Anti HCV – Non reactive

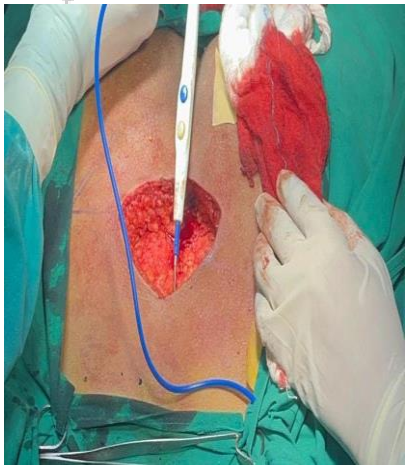
Surgical Procedure

Operation was performed under spinal anesthesia. Patient was placed in prone position and the buttocks strapped apart by adhesive tapes. After adequate shaving and skin preparation over sacro-coccygeal area before operation. Using a sterile skin-marking pen a rhomboid area of skin was marked over pilonidal sinus involving all midline pits and lateral extension. The flap design was mapped on the skin. The long axis of the rhomboid in midline was marked as A-C, C being adjacent to perianal skin, A placed so that all diseased tissues can be included in the excision. The line B-D transected the midpoint of A-C at right angles and is 60 % of its length. D-E was a direct continuation of the line B-D and was of equal length to the incision B-A, to which it was sutured after rotation. E-F was parallel to D-C and of equal length. After rotation, it was sutured to A-D.The rhomboid shaped excision including the sinus . Flap is constructed by extending the incision laterally and down to the fascia. The diseased area is removed. Flap should be exactly of the same angles and length of the defect made by the excision. Thus, a rhombic shaped fascio-cutaneous flap is developed. The flap is transposed into the rhombic defect without tension. Suction drain is placed in the wound cavity. Subcutaneous tissue is approximated with interrupted 2-0 vicryl ab suture. Skin is closed with mattress interrupted suture with ethilon 3-0 suture

Preoperative pilonidal sinus



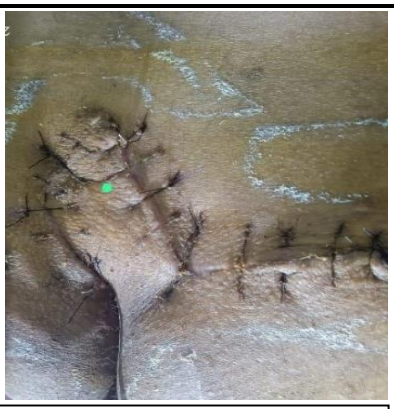
Marking of rhomboid flap



Excision of Pilonidal sinus tract

Placement of suction drain, Rotation & fixation of flap over defect

After suturing complete closure



Alternate stitch removed

All stitches removed

Observation & Result

A patient was diagnosed with pilonidal sinus after careful examination and clinical findings, and was subsequently admitted to the hospital for surgical management.Pre-operative preparation included routine blood examination and viral marker screening to assess the patient's overall health. The patient also received thorough counseling on the severity of the disease and potential future complications.With the patient's consent, the pilonidal sinus was operated on under spinal anesthesia using rhomboid flap reconstruction surgery. This procedure created a tension-free flap of unscarred skin in the midline.Post-operative care involved administering antibiotics for 5 days to prevent surgical site infection, initially intravenously and then orally. The suction drain was removed after 10 days, and stitches were removed on the 16th day.The patient did not experience any complications, such as seroma formation, haematoma formation, edema, flap necrosis, surgical site wound infection, or postoperative pain.The patient was advised to avoid putting pressure on the flap for 3 weeks and to refrain from excessive physical strain for 3-4 weeks. Follow-up appointments were scheduled on an outpatient basis to monitor healing and Laser hair removal were suggested to prevent recurrence.

Discussion

Pilonidal sinus is a condition that disproportionately affects individuals with certain occupations, such as jeep drivers and hairdressers, due to prolonged sitting and specific job requirements.Despite various conservative and surgical treatment options, pilonidal sinus has a high recurrence rate due to limitations in these methods.

Advantages of Rhomboid Flap Reconstruction

Rhomboid flap reconstruction offers several benefits over other surgical modalities:

- Flattening the natal cleft: Reduces the risk of recurrence by eliminating the deep cleft.
- Well-vascularized flap: Promotes healing and reduces complications.
- Tension-free closure: Minimizes the risk of wound dehiscence and promotes healing.
- Avoids midline dead space
- Useful in complex cases: Effective for sinuses with multiple pits and recurrent cases.
- Better aesthetic outcome : The flap provide a smooth contour & cosmetically acceptable scar placement
- Reduced hospital stay and recovery time: Patients can return to normal activities sooner.

Post-Operative Care

Proper wound care is crucial to prevent complications and recurrence. Patients should:

- Avoid exercise and sitting for 2 weeks: Allow the wound to heal.
- Maintain hair removal and local hygiene: Essential to prevent recurrence.
- Gradually return to normal activities: Avoid excessive strain and strenuous exercise for 3-4 weeks.

By combining rhomboid flap reconstruction with proper post-operative care, patients can reduce the risk of recurrence and achieve a better outcome.

Conclusion

The rhomboid flap technique represents an effective and reliable reconstructive option for managing defects following pilonidal sinus excision. This method is associated with high patient satisfaction, a low incidence of postoperative complications and recurrence, shorter hospitalization periods, and accelerated wound healing compared to conventional closure techniques.

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