

## Case Report

# Pilonidal Disease of the Sternum: A Case Report of Rare Occurrence in an Elderly Male Treated with Excision and Bilateral Rotation Flap Reconstruction

Steven L Chang\*, Michael L Chang, Matthew M Delancy and Lawrence D Chang

Department of Surgery, Advanced Plastic Surgery Center, USA

## Abstract

Pilonidal disease is characterized by chronic inflammation of the folliculopilosebaceous unit and commonly affects the intergluteal cleft. However, it can be present in other regions such as the ear, nose, and axilla. We detail a case of a 74 year old male who presented with a draining lesion on the lower sternum. On evaluation and exploration, a well-defined sinus tract and central hair follicle were excised and subsequently closed by bilateral rotation flaps. This case study demonstrates the importance of identifying pilonidal disease outside of the classic sacrococcygeal presentation and efficacy of opposing rotation flaps for reconstruction in high-tension, midline thoracic wounds.

**Keywords:** Pilonidal; Pilonidal sinus; Chest wall sinus; Lower sternum; Anterior chest wall; Pilonidal cyst; Case report; Abscess; Bilateral rotation flap; Rotation flap; Excision

## Introduction

Pilonidal disease is a subset of the follicular occlusion tetrad, characterized by chronic inflammation of the folliculopilosebaceous unit. A pilonidal sinus develops as sequelae of a localized folliculitis, follicular occlusion, and subsequent inflammatory abscess which extend to penetrate the underlying subcutis [1]. It is most commonly a suppurative peri-anal condition affecting the intergluteal cleft, but can also affect other regions such as the ear, nose, axilla, umbilicus, finger and toe web space [1-3]. The typical age of onset ranges from 10-40 years old and tends to affect males in 80% of cases [3,4]. Other risk factors for pilonidal disease include hirsutism, obesity, and chronic occupational exposure to hair [1]. After surgical excision of the sinus, resulting defects have been reconstructed with a variety of local tissue rearrangements such as the Limberg flap, Karydakias flap, V-Y advancement, and Z-plasty techniques [5,6]. Breast and chest pilonidal cysts represent a rare variant with just a few cases reported in literature [3,7]. In these cases, the surgical technique described involves simple excision with primary closure. However, defects of the midline thorax present a unique challenge to the reconstructive surgeon, namely the limited mobility of adjacent tissue to attain a tension-free closure. We present a rare case of a midline chest pilonidal sinus treated with surgical extirpation and closure with bilateral rotation flaps.

## Case Presentation

We report a case of a 74 year old male who presented with a 2 cm draining lesion of his lower sternum, which had reportedly been enlarging for the prior six weeks. Initial examination revealed a tender, erythematous, mass on the lower sternum with surrounding hypergranulation tissue (Figure 1). Punch biopsy revealed benign granulation tissue. Cultures were notable for *Staphylococcus aureus* and *Klebsiella pneumoniae*, treated with doxycycline. Plain film radiographs of the chest were unremarkable. An ultrasound showed a 1.6 cm solid mass with a probable sinus tract extending to the skin surface.

Conservative management and local wound care offered minimal improvement, thus surgical excision was pursued with the goal of obtaining a definitive pathologic diagnosis and attaining definitive wound closure. Preoperative markings are indicated in Figure 2.

Surgical exploration revealed a 4 cm well-organized sinus tract that extended down to the sternal bone. The sinus tract was dissected free of the surrounding tissues and off the underlying periosteum without evidence of destruction of the outer cortex (Figure 3).

The pectoralis major muscle was released from its sternal attachments bilaterally and advanced over the exposed periosteum to ablate dead space and bring vascularized tissue into the wound (Figure 4). The bilateral rotational skin flaps were brought into the defect for a tension-free closure. A #19 Blake drain was placed (Figure 5).

The patient was discharged home on oral keflex until the drain was removed seven days later. Final pathology showed no evidence of malignancy but demonstrated a well-defined sinus tract and granulomatous inflammation surrounding a central hair follicle (Figure 6). The patient healed well without recurrence (Figure 7).

## Discussion

The presentation of pilonidal disease is reported to be uncommon in pre-adolescence and after forty years of age [3]. A broad literature search reveals seven case reports of pilonidal cysts in the breast, five of which occurred in females [1,2,8-10] and two in males younger

**Citation:** Chang SL, Chang ML, Delancy MM, Chang LD. Pilonidal Disease of the Sternum: A Case Report of Rare Occurrence in an Elderly Male Treated with Excision and Bilateral Rotation Flap Reconstruction. Am J Surg Case Rep. 2024;5(1):1111.

**Copyright:** © 2024 Steven L Chang

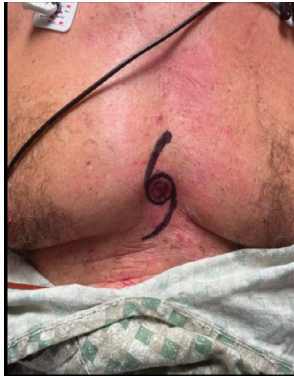
**Publisher Name:** Medtext Publications LLC

**Manuscript compiled:** Jan 11<sup>th</sup>, 2024

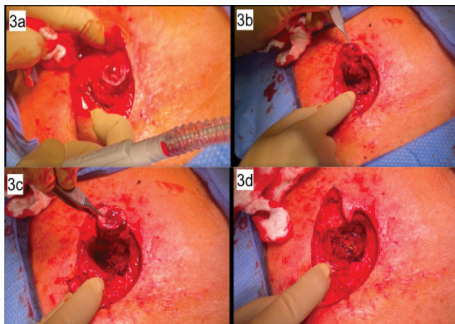
**\*Corresponding author:** Steven L Chang, Department of Surgery, Advanced Plastic Surgery Center, 774 Christiana Road Newark, DE 19713, USA, Tel: +1-302-985-7821



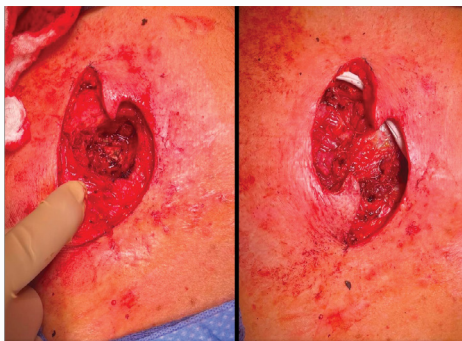
**Figure 1:** The lesion on the patient's lower sternum.



**Figure 2:** Preoperative markings of the planned excision and opposing rotation flaps.



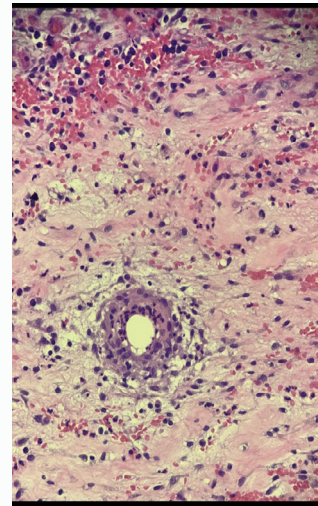
**Figure 3:** (A) Pilonidal sinus tract dissected out, (B,C). Sinus tract adherent to periosteum of the lower sternum, (D) Sinus tract resected with exposed sternum.



**Figure 4:** The lower sternum wound with exposed periosteum after resection of pilonidal cyst (left image). Wound with bilateral pectoralis muscle advancement flaps (right image).



**Figure 5:** Post excision with immediate reconstruction.



**Figure 6:** Final histological imaging of granulomatous inflammation around hair follicle.



**Figure 7:** Lesion two-month postoperative.

than 40 years old [11,12]. Ferahman et al. [7] reports a series of pilonidal cysts in the intermammary cleft in 12 female patients. There are currently no reported cases of anterior thorax pilonidal cysts in elderly male patients.

The case presented herein is unique due to the anatomic disease location, patient demographic, and technique of wound closure. In perhaps one of the most similar cases reported in the literature, a 24 year old hirsute male presented with a pilonidal sinus on the medial chest [12]. After two recurrences for what was originally believed to be a sebaceous cyst, the pilonidal cyst was adequately excised and closed in a simple side-to-side fashion.

Adjacent tissue transfer techniques such as Z-plasty have been described with higher success compared to excision with primary closure [13]. However, opposing rotation flaps have not been described for the closure of pilonidal cysts. It is necessary to create a closure pattern that redirects and reduces tension to minimize risk of dehiscence and permit scar formation of higher aesthetic quality [14].

## Conclusion

It is important for medical providers to be aware of the possibility of pilonidal disease beyond the pathognomonic sacrococcygeal presentation. Anterior thoracic soft tissue defects present unique challenges that require careful preoperative planning due to the limited mobility of adjacent tissues and potential for high-tension closures. We demonstrate the efficacy of opposing rotation flaps for the reconstruction of small midline thoracic wounds. Advancement of the underlying pectoralis muscle has been previously well described for sternal wound reconstruction and can serve as an effective adjunct in eliminating dead space and providing vascularized tissue in an infected or hostile wound bed.

## t

1. Keighley J, Nadim A, Howlett D. Pilonidal abscess of the breast. *BMJ Case Rep.* 2019;12(3):e227381.
2. Lahiri R, Mullen R, Ashton MA, Abbott NC, Pollock AM. Pilonidal abscess in the breast: a case report. *J Surg Case Rep.* 2014;2014(6):rju061.
3. Salih AM, Kakamad FH, Hammood ZD, Baba HO, Habibullah IJ, Salih RQ, et al. Pilonidal sinus of breast: A case report with literature review. *Int J Surg Case Rep.* 2020;66:204-6.
4. Luedi MM, Schober P, Stauffer VK, Diekmann M, Doll D. Global Gender Differences in Pilonidal Sinus Disease: A Random-Effects Meta-Analysis. *World J Surg.* 2020;44(11):3702-9.
5. Yang YP, Yu LY, Wang YZ, Shi J, Li JN, Shang FJ, et al. Comparative analysis on the effect of Z-plasty versus conventional simple excision for the treatment of sacrococcygeal pilonidal sinus: A retrospective randomised clinical study. *Int Wound J.* 2020;17(3):555-61.
6. Bi S, Sun K, Chen S, Gu J. Surgical procedures in the pilonidal sinus disease: a systematic review and network meta-analysis. *Sci Rep.* 2020;10(1):13720.
7. Ferahman S, Donmez T, Surek A, Orhan A, Ozcevik H. Intermammary pilonidal sinus in women. Diagnosis and treatment. *Hippokratia.* 2020;24(2):84-7.
8. Gannon MX, Crowson MC, Fielding JW. Periareolar pilonidal abscesses in a hairdresser. *BMJ.* 1988;297(6664):1641-2.
9. Ferdinand RD, Scott DJ, McLean NR. Pilonidal cyst of the breast. *Br J Surg.* 1997;84(6):784.
10. Kaufman PA. Pilonidal disease of the nipple. *West J Surg Obstet Gynecol.* 1961;69:9-10.
11. Hughes R, Iqbal FM, Salem F, Vidya R. Pilonidal cyst of the male breast: barber's disease. *Br J Hosp Med (Lond).* 2016;77(10):599.
12. Soomro N, Pervez H. Anterior chest wall pilonidal sinus: disease at a rare site. *J Pak Med Assoc.* 2021;71(3):1002-3.
13. Mansoor A, Dickson D. Z-plasty for treatment of disease of the pilonidal sinus. *Surg Gynecol Obstet.* 1982;155(3):409-11.
14. Prohaska J, Sequeira Campos M, Cook C. Rotation Flaps. *StatPearls.* 2023.