



Case Report

A subareolar breast abscess in a man: A case report and literature review

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المخلص

يعتبر خراج الثدي تحت الهالة عند الذكور نادرا بشكل استثنائي. حتى اليوم، تم وصف ١٥ حالة فقط لخراج الثدي تحت الهالة عند الذكور في الأدب الإنجليزي. نقدم حالة خراج الثدي تحت الهالة لرجل يبلغ من العمر ٢٨ عاما حضر إلى عيادة الجراحة يشكو من تورم مؤلم في الثدي الأيمن من ١٠ أيام. أظهر الفحص السريري وجود كتلة ساخنة طرية تحت هالة الثدي الأيمن مع احمرار للجلد. وأظهرت الأمواج فوق الصوتية للثدي الأيمن السمات الإشعاعية لخراج الثدي. نتج عن الرشف بالإبرة الدقيقة صديدا بني-أصفر. بناء على هذه النتائج، تم تشخيص خراج تحت هالة حلمة الثدي الأيمن. هذه الحالة هي أول حالة موثقة لخراج الثدي تحت الهالة عند الذكور من المملكة العربية السعودية. إلى جانب ذلك، تقرير هذه الحالة يلقي الضوء على النهج الحالي السريري والعلاجي لعلاج حالات خراج الثدي تحت الهالة عند الذكور.

الكلمات المفتاحية: ذكر؛ خراج الثدي تحت الهالة؛ ناسور القناة اللبينية؛ الرشف بالإبرة الدقيقة

Abstract

Subareolar breast abscesses (SBAs) in men are extremely rare. To date, only 15 men with SBA have been reported in the English literature. We present a case of SBA in a 28-year-old man who visited our surgical clinic with a painful swelling in his right breast for 10 days. Physical examination showed a tender, hot mass in the right subareolar area with erythema. Ultrasound of the right breast showed radiological features of a breast abscess. Fine-needle aspiration yielded brownish yellow pus. Based on these findings, a diagnosis of right SBA was

established. This is the first documented case of SBA in men from the KSA. Additionally, this case report sheds light on the current clinical and therapeutic approaches to managing cases of SBA in men.

Keywords: Fine-needle aspiration; Lactiferous duct fistula; Male; Subareolar breast abscess

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Introduction

A subareolar breast abscess (SBA), also known as a lactiferous duct fistula, is more commonly seen in women and rarely in men.^{1,2} The precise etiopathogenesis of SBA is not clearly defined. However, the initial process has been suggested to begin with squamous metaplasia of the lactiferous ducts and ampulla. The source of squamous metaplasia is not exactly delineated and may take place secondary to comedomastitis, inverted nipples, or a congenital abnormality of the ductal systems. Squamous metaplasia is often accompanied by keratinisation. Subsequently, the lactiferous ducts become obstructed by keratin plugs, dilated, and consequentially complicated by rupture, bacterial infection, and eventually abscess formation.^{1,2}

Nipple piercing, obesity, trauma, and iatrogenic procedures have been documented as predisposing factors for SBA. Moreover, diabetes mellitus and human immunodeficiency virus (HIV) infection have been reported. Notably, a positive association has been identified between cigarette smoking and SBA.^{3–6}

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SBA is usually diagnosed clinically and confirmed using fine-needle aspiration cytology (FNAC).⁷ Diagnostic confirmation is essential for proper management to avoid complications, such as abscess recurrence and fistula formation.² Acute mastitis, fat necrosis, epidermoid cyst, and malignancy are included in the differential diagnosis of SBA.^{2,8}

A literature review revealed only 15 cases of SBA in men. Including our case, 13 patients (81%) underwent FNAC. The standard treatment for SBA is debatable. However, various management approaches, including aspiration with antibiotics, incision and drainage, tumour and duct resections, and simple tumourectomy, have been performed.^{3,7-13}

Herein, we present a case of right SBA in a 28-year-old man. To the best of our knowledge, this is the first documented report from KSA. We address the clinical and therapeutic approaches to managing such cases. Moreover, we provide a summary of all PubMed-indexed published cases of SBA in men.

Case presentation

A 28-year-old Bangladeshi non-smoker man visited the surgical clinic complaining of a painful swelling in the right breast for 10 days. He reported no nipple discharge or trauma. The past medical, surgical, and family histories were unremarkable. He had initially visited a nearby primary healthcare centre and had been prescribed with amoxicillin. Physical examination exhibited a tender, hot swelling in the right subareolar area with erythema (Figures 1 and 2). There was a palpable mobile right axillary lymph node. The initial blood work-up showed leucocytosis at a leucocyte count of $14 \times 10^9/L$.



Figure 1: A gross picture of the patient showing the abnormal (right) and normal (left) breasts.



Figure 2: A gross picture of the patient showing a swelling in the subareolar region of the right breast with erythema.

Ultrasound (US) of the right breast showed a 3×2 -cm lobulated, hypoechoic mass with a hyperechoic rim. The mass did not show Doppler flow, and its appearance was suggestive of a breast abscess. Furthermore, multiple right axillary lymph nodes were enlarged, the largest one measuring 2×1 cm. Fine-needle aspiration (FNA) yielded brownish yellow pus. FNAC showed a few mature squamous cells admixed with many anucleated squamous cells in a background of mixed inflammatory cell infiltrates composed of numerous polymorphs, lymphocytes, and a few histiocytes. In addition, multinucleated foreign body-type giant cells and necrotic debris were seen. No ductal epithelial cells were present. Ziehl–Neelsen staining was negative for acid-fast bacilli. No microorganism was detected in the pus culture.

According to the previous findings, a diagnosis of right SBA was established. Our plan was to admit the patient, surgically drain the abscess, culture the pus, and biopsy the surrounding tissues. Unfortunately, the patient left our clinic and did not return. One week later, we followed-up on the patient via phone, and he reported to be doing well.

Discussion

Generally, breast abscesses in women are classified into two categories: puerperal and nonpuerperal. Puerperal SBA typically occurs during pregnancy, lactation, or at the time of

Table 1: A summary of all English-language PubMed-indexed published cases of subareolar breast abscess in men.

Ref	Authors	Year	Age (yr)	Side	Presentation	Duration	FNA	Treatment	Antibiotics
2	Galblum and Oertel	1983	41	NR	NR	NR	+	NR	NR
2	Galblum and Oertel	1983	47	NR	NR	NR	+	NR	NR
9	López-Ríos et al.	1997	45	Rt	Recurrent abscess before retroareolar nodule noted	1 year	+	Tumor and duct resection	+
9	López-Ríos et al.	1997	37	Lt	Recurrent abscess	8 months	+	NR	Not given
8	Silverman et al.	1997	45	Lt	Subareolar mass and nipple discharge	5 months	+	Aspiration drainage	+
10	Rajaram et al.	2008	42	Lt	Subareolar nodule associated with pain and pus nipple discharge	2 years	+	NR	NR
10	Rajaram et al.	2008	17	Lt	Pain and swelling of the left breast	2 days	+	Tumor and duct resection	NR
7	Subramaniam & En	2012	57	Lt	Subareolar nodule	1 month	+	Aspiration drainage	+
3	Sinha et al.	2014	38	B/L	Bilateral painful breast swelling and redness	7 days	+	Incision and drainage	+
11	Johnson et al.	2014	41	Rt	Subareolar mass and intermittent serosanguinous discharge from an areolar opening	6 months	-	Tumor and duct resection	Not given
11	Johnson et al.	2014	39	Lt	Tender nodule followed by open wound abutting the left areolar	6 months	-	Tumor and duct resection	+
12	Aiyappan et al.	2015	27	Lt	Painful breast swelling	7 days	+	Incision and drainage	NR
13	Kazama et al.	2017	38	Rt	Breast mass with nipple discharge	1 month	-	Simple tumorectomy	Not given
13	Kazama et al.	2017	65	Rt	Hard breast mass with skin inflammation	3 months	+	Tumor and duct resection	+
4	Gochhait et al.	2018	45	Lt	Breast mass with slight retraction of the nipple	6 months	+	NR	NR
	Present study	2020	28	Rt	Painful subareolar swelling	10 days	+	Aspiration drainage	+

B/L: Bilateral; FNA: fine needle aspiration; Lt: Left; NR: Not reported; Ref: Reference; Rt: Right; Yr: years.

lactation weaning. More than 90% of the nonpuerperal type is labelled as SBA, which is found in the retroareolar and periareolar areas.¹⁵ Zuska et al. recorded the first case of SBA in 1951.¹ SBA usually affects women and very rarely men.²

In 1997, Silverman et al. reported the first case of FNAC for SBA in a man. They concluded that SBA is characterised by the presence of anucleated squamous cells with an acute and/or a chronic inflammatory response, sporadic multinucleated foreign body giant cells, and granulation tissue.⁸ The most common microorganisms detected in primary SBA are gram-positive bacteria. Conversely, anaerobic bacteria are found mainly in recurrent SBA.¹⁵

The male breast is prone to different pathological conditions. Gynaecomastia is the most commonly encountered condition of the male breast.¹⁴ However, other conditions, including subareolar abscess, sebaceous cyst, diabetic mastopathy, nodular fasciitis, secondary syphilis, fat necrosis, haematoma, intramammary lymph node, and malignancy have been reported.¹⁴

SBA has been reported in patients with various infections (such as HIV infection, tuberculosis, and brucellosis), duct ectasia, coexisting morbidities (such as diabetes and obesity), lifestyle habits (such as cigarette smoking and nipple piercing), iatrogenic procedures, and trauma.³⁻⁶ Nevertheless, no risk factors for SBA were identified in our patient.

SBA can mimic breast carcinoma on both clinical examination and radiological investigations.^{2,4} Ventham and Hussien reported an unusual case of breast cancer in a man initially presenting with a breast abscess.¹⁶ It was recommended that a biopsy specimen be obtained from the

cavity wall if the abscess does not improve within 2 months of the initial percutaneous treatment.¹⁶

Clinical presentation along with purulent aspiration are key elements in the diagnosis of SBA. In addition, some radiological investigations, including breast US and mammogram, may provide further details.^{2,11} Earlier reports have scrutinised the importance of FNAC in the assessment of male breast lesions generally¹⁷ and in confirming the diagnosis of SBA particularly.^{2,8,9} In our patient, the diagnosis was confirmed based on clinical features, US findings, and FNAC results. Apart from diagnostic purposes, FNA combined with antibiotics can be useful in relieving the acute symptoms of SBA^{2,7,9,10} as initially performed for our patient. Making the pathological diagnosis of SBA is important for its optimal management^{9,10} and for preventing abscess recurrence and fistula formation.¹¹ Most importantly, it aids in differentiating SBA from malignant conditions.¹³

To the best of our knowledge, only 15 men with SBA have been reported in the English-language PubMed-indexed literature (Table 1).^{2-4,7-13} Out of 15 patients, 13 were aged between 37 and 65 years, and the duration of their presentations ranged from 1 month to 2 years. The remaining two patients were younger, aged 17 and 27 years, and had 2 and 7 days of presentation, respectively.^{10,12} Similar to these two patients, our patient was also young, and he had an acute presentation. Overall, eight patients had left-sided SBA; four patients had right-sided SBA (as noted in our patient); and only one patient had bilateral SBA. Including our case, 13 patients (81%) underwent FNAC. Of the 15 reported patients, two underwent incision and drainage, while in two other patients,

aspiration drainage and antibiotics were used. Tumour and duct resections were performed for five patients, whereas simple tumourectomy was performed for one patient. Data for the remaining cases were deficient with regards to the surgical intervention. Interestingly, the racial/ethnic background may increase the risk of SBA. Similar to our patient, five patients belonged to the Indian subcontinent. The present case makes a significant contribution to the literature by providing additional clinicopathological findings of SBA in men.

The appropriate treatment of SBA in men remains controversial. However, different therapeutic approaches have been suggested. Aspiration drainage plus antibiotics are used in the acute stage of SBA.^{7,8} Conversely, complete tumour and duct resections are advocated in chronic SBA.^{9–11,13} In the present case, the aspiration drainage and antibiotic regimen were used in line with previous reports.^{7,8} In fact, as the optimal treatment in our patient, we planned to surgically drain the abscess, culture the pus, and biopsy the adjacent tissues. However, the patient left our clinic and did not return. We recommend the aforementioned management protocol at the acute stage of SBA to avoid nipple deformity. Such a management protocol has been performed by other authors.^{3,12} In addition, we believe that complete tumour and duct resections may be required for chronic and recurrent cases.

Conclusion

SBA is rare in men. It is most often diagnosed clinically and confirmed by FNAC. The appropriate treatment of SBA in men continues to be controversial. The clinical follow-up is essential to monitor for recurrence and exclude malignancy.

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Conflict of interest

The author has no conflict of interest to declare.

Ethical approval

The author certify that he has obtained all appropriate patient consent forms. In the form, the patient has given his consent for images and other clinical information to be reported in the journal. The patient understands that his name and initials will not be published and due efforts will be made to conceal patient identity, but anonymity cannot be guaranteed.

Consent

Informed consent was obtained from the patient for publication of this manuscript.

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References

- Zuska JJ, Crile G, Ayres WW. Fistulas of lactiferous ducts. *Am J Surg* **1951**; 81: 312–317.
- Galblum LI, Oertel YC. Subareolar abscess of the breast: diagnosis by fine-needle aspiration. *Am J Clin Pathol* **1983**; 80: 496–499.
- Sinha RK, Sinha MK, Gaurav K, Kumar A. Idiopathic bilateral male breast abscess. *BMJ Case Rep* **2014**; 2014. bcr2013202169.
- Gochhait D, Dehuri P, Umamahesweran S, Kamat R. Breast abscess mimicking breast carcinoma in male. *J Midlife Health* **2018**; 9: 39.
- Schäfer P, Furrer C, Mermillod B. An association of cigarette smoking with recurrent subareolar breast abscess. *Int J Epidemiol* **1988**; 17: 810–813.
- Gollapalli V, Liao J, Dudakovic A, Sugg SL, Scott-Conner CE, Weigel RJ. Risk factors for development and recurrence of primary breast abscesses. *J Am Coll Surg* **2010**; 211: 41–48.
- Subramaniam MM, En NM. Subareolar abscess in a male breast: cytological characterisation and distinction from other benign and malignant squamous cell aspirate. *Pathology* **2012**; 44: 472–474.
- Silverman JF, Raso DS, Elsheikh TM, Lannin D. Fine-needle aspiration cytology of a subareolar abscess of the male breast. *Diagn Cytopathol* **1998**; 18: 441–444.
- López-Ríos F, Dhimes P. Subareolar abscess of the breast in a male. A report of two cases with fine needle aspiration cytology diagnosis. *Acta Cyto* **1997**; 41: 1819–1822.
- Rajaram ST, Kini H, Rau A, Pai R. Subareolar abscess in the male breast. *Diagn Cytopathol* **2008**; 36: 766–767.
- Johnson SP, Kaoutzanis C, Schaub GA. Male Zuska's disease. *BMJ Case Rep* **2014**; 2014. bcr2013201922.
- Aiyappan SK, Ranga U, Veeraiyan S. Idiopathic subareolar breast abscess in a male patient. *J Clin Diagn Res* **2015**; 9: TJ01.
- Kazama T, Tabei I, Sekine C, Funamizu N, Onda S, Okamoto T, et al. Subareolar breast abscess in male patients: a report of two patients with a literature review. *Surg Case Rep* **2017**; 3: 128.
- Nguyen C, Kettler MD, Swirsky ME, Miller VI, Scott C, Krause R, et al. Male breast disease: pictorial review with radiologic-pathologic correlation. *Radiographics* **2013**; 33: 763–779.
- Versluijs-Ossewaarde FL, Roumen RM, Goris R. Subareolar breast abscesses: characteristics and results of surgical treatment. *Breast J* **2005**; 11: 179–182.
- Ventham N, Hussien M. Male breast cancer is rare: an initial presentation may be as an abscess. *BMJ Case Rep* **2010**; 2010. bcr1120092449.
- Lilleng R, Paksoy N, Vural G, Langmark F, Hagmar B. Assessment of fine needle aspiration cytology and histopathology for diagnosing male breast masses. *Acta Cytol* **1995**; 39: 877–881.

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