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Case Report

Pelvic cellulitis, a rare complication of bartholinitis: report of two cases [☆]

Btissam Benabderrazik, MD^{*}, Ismail Chaouche, MD, Meryem Haloua, MD, Nizar El Bouardi, MD, Badreddine Alami, MD, Youssef My Alaoui Lamrani, MD, Mustapha Maaroufi, MD, Meryem Boubbou, MD

Radiology Department, CHU Hassan II, Fès, Morocco

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ABSTRACT

Pelvic or perivaginal cellulitis is a rare but serious complication of bartholinitis and can be life-threatening. It is described of polymicrobial nature. The diagnosis of pelvic cellulitis remains essentially clinical with signs of local inflammation.

The interest of imaging, CT in particular, is to assess the extent of the infection and abscess.

In this report, we describe 2 cases of pelvic cellulitis complicating a Bartholin's abscess caused by negative gram bacilli in 2 diabetic women in their sixties.

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Introduction

The Bartholin's glands are important organs of the female reproductive system. Their function is to secrete mucous for vulvar and vaginal lubrication. They are located deep in the posterior aspects of the labia majora, just below the hymenal ring, and drain through ducts into the vestibule [1].

The Bartholin's glands are prone to infections and abscess formation [2]. Approximately 2% of women will develop a Bartholin duct cyst or gland abscess over their lifetime [3].

Bartholinitis is an infection of the Bartholin's gland itself that can be complicated by a Bartholin's abscess.

A Bartholin's abscess is a collection of pus due to secondary infection of a cyst of the Bartholin's gland (fluid accumulated inside a blocked duct of the gland), or less commonly, due to primary infection of the Bartholin's gland. Most of Bartholin's gland abscesses have been found to be caused by micro-organisms that colonize the perineal region [4].

Pelvic or perivaginal cellulitis is a rare but serious complication of bartholinitis. It can be life-threatening. It can occur even after optimal management of bartholinitis.

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^{*} Corresponding author.

E-mail address: Btissam.benabderrazik@usmba.ac.ma (B. Benabderrazik).

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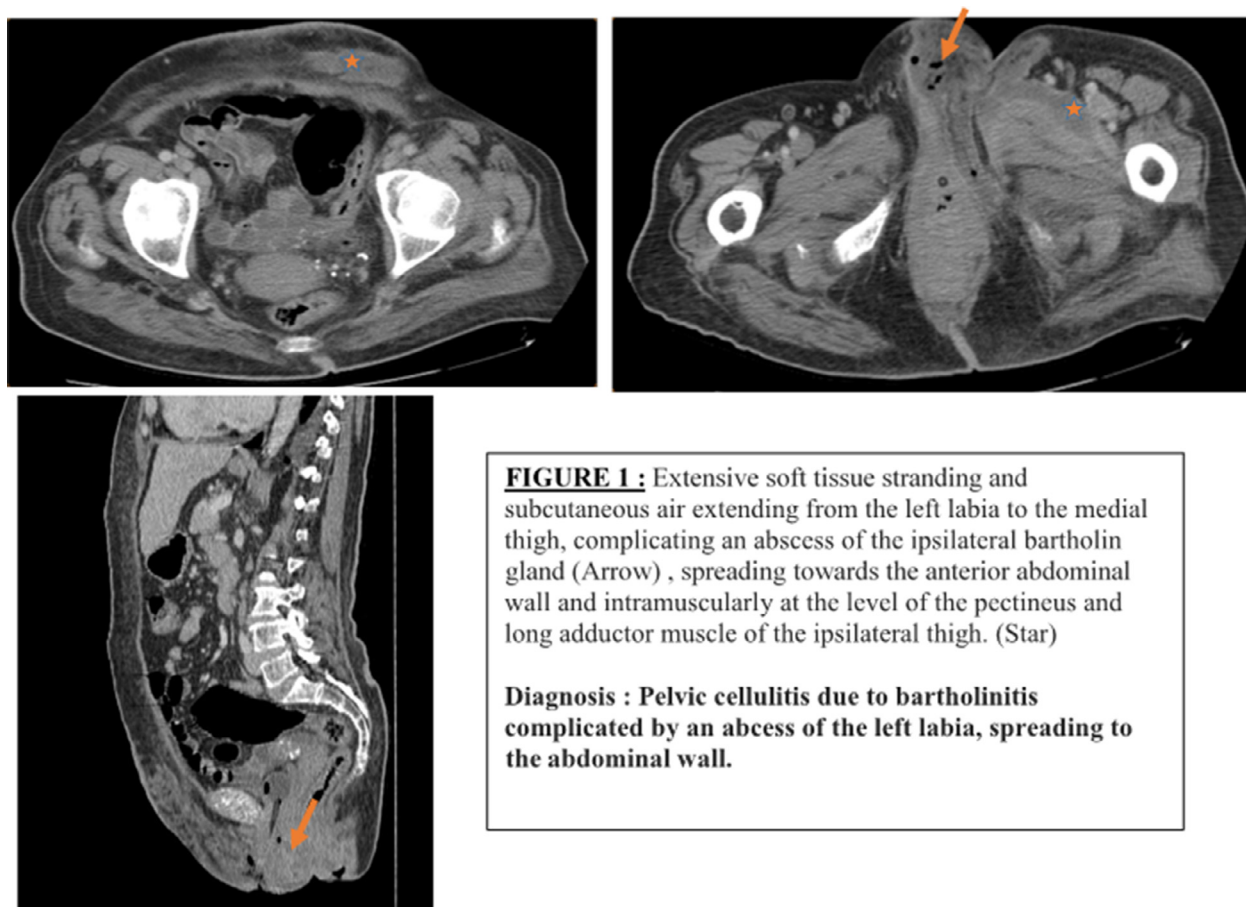


FIGURE 1: Extensive soft tissue stranding and subcutaneous air extending from the left labia to the medial thigh, complicating an abscess of the ipsilateral Bartholin's gland (Arrow), spreading towards the anterior abdominal wall and intramuscularly at the level of the pectineus and long adductor muscle of the ipsilateral thigh. (Star)

Diagnosis: Pelvic cellulitis due to Bartholin's abscess complicated by an abscess of the left labia, spreading to the abdominal wall.

Fig. 1

In this report, we describe 2 cases of pelvic cellulitis complicating a Bartholin's abscess in 60- and 50-year-old women.

Case presentation

Case 1

A 62-year-old female presented with complaints of left labial pain and swelling following incision and drainage of a Bartholin's abscess at an outside facility 20 days earlier (where she was hospitalized for 13 days).

The patient's medical history was notable for type 2 diabetes and obesity.

On admission to our facility, 1 week after her first hospitalization, the patient had a CT scan that demonstrated extensive soft tissue stranding and subcutaneous air extending from the left labia to the medial thigh, complicating an abscess of the ipsilateral Bartholin's gland, spreading toward the anterior abdominal wall and intramuscularly at the level of the pectineus and long adductor muscle of the ipsilateral thigh (Fig. 1). The patient had a high white blood cell count and CRP.

A broad-spectrum antimicrobial regimen was initiated with levofloxacin and vancomycin.

The abscess was drained for the second time (20 days after the first drainage) and irrigated free of purulent exudate.

Intraoperative evaluation of the surgical incision confirmed the diagnosis and allowed for the debridement of necrotic tissue all the way down to the fascia of the medial thigh, groin, and lower abdominal musculature. Cultures demonstrated the growth of gram-negative bacteria.

Serial debridements with irrigation and packing afforded healing.

The patient was discharged home on hospital day 20 with an open wound managed by packing and dressing changes. Physical examination prior to discharge demonstrated an open wound with a base of healthy tissue and no purulent exudate.

The patient was followed up in an outpatient clinic, and the wound was noted to have closed completely.

Case 2

A 65-year-old female presented with complaints of right labial pain and swelling.

The patient's medical history was notable for type 2 diabetes and obesity.

On physical exam, a Bartholin's abscess with cellulitis of the right labia majora was noted. The patient had a high white blood cell count and CRP.

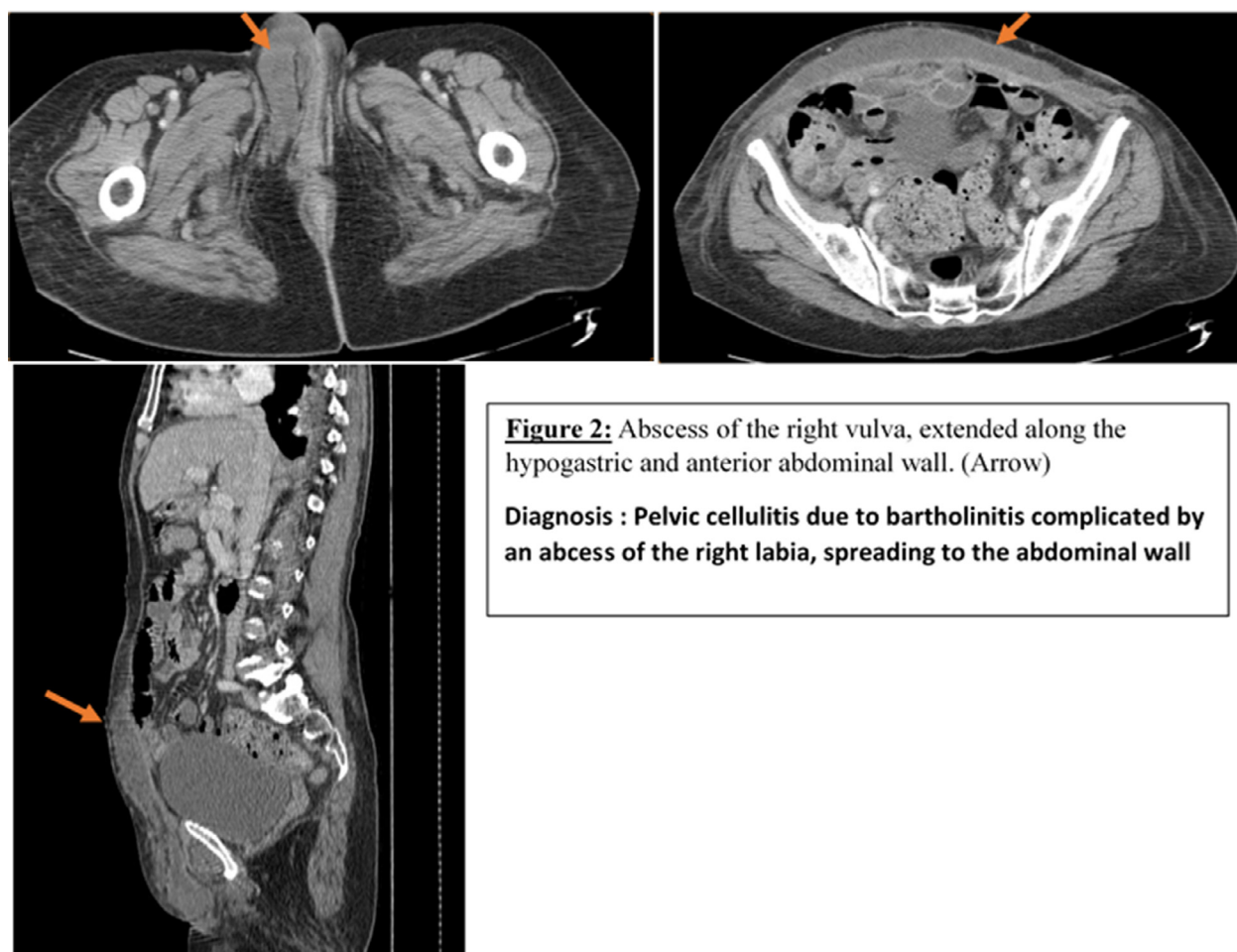


Figure 2: Abscess of the right vulva, extended along the hypogastric and anterior abdominal wall. (Arrow)

Diagnosis : Pelvic cellulitis due to bartholinitis complicated by an abscess of the right labia, spreading to the abdominal wall

Fig. 2

The CT scan demonstrated an abscess of the right bartholin gland, spreading towards the anterior abdominal wall with extensive soft tissue stranding extending from the right labia to the abdominal wall (Fig. 2).

A broad-spectrum antimicrobial regimen was initiated with levofloxacin and vancomycin. The abscess was incised, drained, and irrigated free of purulent exudate. The pathologic specimen demonstrated only an acute inflammatory process, and wound cultures demonstrated growth of gram-negative bacilli).

Serial debridements with irrigation and packing afforded healing by secondary intention.

The patient was followed up in an outpatient clinic, and the perineal wound was noted to have closed completely.

Discussion

Bartholinitis is a common problem in the gynecological field, affecting 2% of women, often requiring urgent management [5].

Pelvic cellulitis is a rare complication of bartholinitis and is due to the continuity of the fascia and fatty tissue of the vulva

that can permit rapid spread of infection to other anatomic structures. Specifically, infection may spread from the superficial fascia of the mons and labia majora to the fascia of the inner thigh and the fascial layer of the anterior abdominal wall. Deeper vulvar fascial layers are in continuity with Scarpa's layer of the anterior abdominal wall as well [6].

The main risk factors are diabetes, obesity, smoking, high blood pressure, and immunosuppression [7]. Both our patients have diabetes.

Bartholinitis is generally due to polymicrobial infection of the retained cystic fluid by constituents of the vaginal flora, typically *Escherichia coli* or *Staphylococcus* [8,9]

Polymicrobial infections with both aerobes and anaerobes were detected with high frequency. Anaerobes would be derived from vaginal flora and might strengthen the pathogenicity of aerobes. Interestingly, there is an increasing isolation rate for respiratory tract-associated infectious organisms, such as *S. pneumoniae* and *Haemophilus influenzae* [10]. In our 2 cases, we isolated gram-negative bacteria.

The diagnosis of pelvic cellulitis remains essentially clinical with signs of local inflammation: erythema, pain, and induration [7].

One of the most life-threatening and dangerous progressions of vulvar cellulitis is the development of necrotizing

fasciitis. Providers must remain astute to early clinical signs (severe pain and significant edema) to accurately diagnose and treat vulvar necrotizing fasciitis timely and aggressively. Unfortunately, the classic skin changes, including dark discoloration, skin necrosis, bullae or vesicle formation, and cutaneous anesthesia, are late signs, and the necrotic damage is irreversible [6].

The interest of imaging, in particular CT, in pelvic cellulitis is to assess the extent of the infection and abscess.

CT may also reveal subcutaneous gas produced by anaerobic and aerobic bacterial metabolism; however, imaging to confirm the diagnosis should not delay surgical debridement and care if the clinician has a strong suspicion for necrotizing fasciitis [6].

In our first case, a CT scan revealed extensive soft tissue stranding and subcutaneous air extending from the left labia to the medial thigh, complicating an abscess of the ipsilateral Bartholin's gland that spread to the anterior abdominal wall and intramuscularly at the level of the pectineus and long adductor muscle of the ipsilateral thigh.

In our second case, a CT scan revealed an abscess of the right vulva that extended along the hypogastric and anterior abdominal wall.

Once the diagnosis of mild, severe cellulitis or necrotizing skin disease is suspected, broad-spectrum antibiotics should be administered and the patient taken immediately to the operating room. There should be no delay in performing a surgical debridement of all necrotic tissue [6,11].

In our 2 cases, a broad-spectrum antimicrobial regimen was initiated. The abscess was incised, drained, and irrigated free of purulent exudate and serial debridements with irrigation and packing afforded healing by secondary intention.

Conclusion

Pelvic or perivulvar cellulitis is a rare complication of Bartholin's glanditis that can be fatal and can occur even after optimal treatment.

Intense pain resistant to level I analgesics after treatment and the increase in the clinical and biological inflammatory syndrome should raise the suspicion of pelvic cellulitis that could be life-threatening.

Imaging to confirm the diagnosis should not delay surgical debridement and care, especially if the clinician has a strong suspicion of necrotizing fasciitis.

Patient consent

Informed written consent was obtained from both patients for publication of the Case Report and all imaging studies.

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