Bartholin’s cysts and abscesses

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Introduction
A Bartholin’s duct cyst (commonly called Bartholin’s cyst) is a fluid filled, swollen sac-like structure which results from a blockage of one of the ducts of the gland. Bartholin’s cyst is a common problem usually affecting women in the reproductive age group, especially between the ages of 20 – 30 years (Aghajanian and Bernstein 1994; Folashade et al. 2003). It has varied presentations ranging from asymptomatic swellings to recurrent infected abscesses and even malignancy. The ideal management is still very controversial. This aim of this paper is to review the current literature on Bartholin’s cysts and abscesses and critically evaluate the various modes of treatment.

Methods
A detailed Medline search (1966 – 2005) was conducted using the keywords: Bartholin, Bartholin’s cyst, abscesses, Bartholinitis, marsupialisation, and all the papers were reviewed.

Historical perspective
Thomas Bartholin was a professor of mathematics and anatomy but also a physician. He was the first to describe the entire lymphatic system. Kaspar Bartholin II was Thomas Bartholin’s son, who like his father, was also a professor at the University of Copenhagen. He is credited with the discovery of the Bartholin glands and also the accessory duct of the sublingual salivary gland (Columbia Electronic Encyclopaedia 2001).

Anatomy
Bartholin’s glands (greater vestibular glands) are homologues of the Cowper’s glands (bulbourethral glands) in males (Stenchever 2001). At puberty, these glands begin to function, providing moisture for the vestibule. The Bartholin’s glands develop from buds in the epithelium of the posterior area of the vestibule. The glands are located bilaterally at the base of the labia minora near the opening of the vagina and drain through 2 – 2.5 cm long ducts that empty into the vestibule at about the 4 o’clock and 8 o’clock positions (Govan et al. 1985; Hill and Lense 1998). During sexual arousal they secrete a lubricating fluid. The glands are usually the size of a pea and rarely exceed 1 cm. They are not palpable except in the presence of disease or infection.

Epidemiology
Bartholin’s duct cysts, the most common cystic growths in the vulva occur in the labia majora (Azzan 1978). Some 2% of women develop a Bartholin’s duct cyst or gland abscess at some time in their life (Kaufman 1994). Abscesses are almost three times more common than cysts. One case-control study reported that compared with Hispanic women, white and black women were more likely to develop Bartholin’s cysts or abscesses (Aghajanian and Bernstein 1994). Women of high parity were at lowest risk. Gradual involution of the Bartholin’s glands can occur by the time a woman reaches 30 years of age (Stillman and Muto 1995). This may account for the more frequent occurrence of Bartholin’s duct cysts and gland abscesses during the reproductive years, especially between 20 and 29 years of age.

Pathology
Obstruction of the distal Bartholin’s duct may result in the retention of secretions, with resultant dilation of the duct and formation of a cyst. The cyst may become infected, and an abscess may develop in the gland. A Bartholin’s duct cyst does not necessarily have to be present before a gland abscess develops (Wilkinson and Stone 1995). Acute ‘bartholinitis’ may form an abscess and ultimately discharge through the lower vaginal wall. The infection sometimes persists sub-clinically and forms recurrent abscesses. Davies et al. (1978) investigated the exudate from Bartholin’s ducts in 30 patients and isolated Neisseria gonorrhoeae in 24 and Chlamydia trachomatis in nine patients, seven of whom had concurrent Neisseria gonorrhoeae infection. This was the first report concerning the role of Chlamydia trachomatis in the microbiological features of Bartholin’s gland abscesses. In another study, aspirates of pus from Bartholin’s abscesses in 28 patients were studied for aerobic and anaerobic bacteria. The
predominant anaerobic organisms were Bacteroides species (23 isolates, including six Bacteroides melaninogenicus group, five Bacteroides fragilis group and four Bacteroides bivius) and Peptostreptococcus species. The predominant aerobic and facultative bacteria were Escherichia coli and Neisseria gonorrhoeae. This study highlighted the polymicrobial nature of Bartholin’s abscesses and the importance of testing for sexually transmitted diseases (Brook 1989). Episiotomy, trauma and vulvovaginal surgery are rare causes of Bartholin’s gland infection or cyst formation (Peters 1998).

Clinical presentation
The disease has a variable presentation that could last from hours to several days. It could be asymptomatic particularly when the cyst is small and not infected. Presenting symptoms include pain (worse during sitting or walking), unilateral oedema and induration around the gland and superficial dyspareunia. A history of sudden relief of pain following a profuse discharge is highly suggestive of spontaneous rupture. The diagnosis of Bartholin’s cysts or abscesses is primarily made during physical examination when a medially protruding tender and fluctuant labial mass can be found in the posterior aspect of the introitus in the region of the duct opening into the vestibule. Fever occurs in approximately one-third of the patients, usually when the cyst gets infected (Folashade et al. 2003). In women over the age of 40, there is an increased risk of malignancy accounting for 2–7% of all invasive vulvar malignancies (Wheelock et al. 1984).

Differential diagnosis
Bartholin cysts and abscesses must be differentiated from other vulvar masses such as epidermal inclusion cysts, mucous cyst of vestibule, cyst of canal of Nuck and Skene’s duct cyst. In a hospital-based cancer risk assessment study, it was suggested that Bartholin’s gland cancer is exceedingly rare in all women including postmenopausal women (Anthony 1996). Most of these vulval swellings are located in the labia majora. The cyst of Skene’s ducts is found adjacent to urethral meatus.

Investigations
The exudate from the Bartholin’s duct can be obtained by massaging the length of the duct. Swabs should be taken from vagina, urethra, endocervix and rectum for culture and sensitivities. Blood tests are not necessary to evaluate an uncomplicated abscess or cyst. In 1978, Davies et al. suggested performing syphilis serology because abscesses are often caused by sexually transmitted organisms. They also suggested that endocervical swabs should be tested for Chlamydia species (Davies et al. 1978). A biopsy should be performed when suspecting malignancy namely, patient older than 40 years, failure to improve with routine treatment, known history of labial malignancy and chronic and/or painless mass in the vaginal area (Wheelock et al. 1984).

The recent advent of magnetic resonance imaging has been shown to have some promise in diagnosing recurrent abnormalities of the Bartholin’s gland or cyst (Marzano and Haefner 2004).

Management
The treatment of Bartholin’s cyst can be conservative or surgical depending on the patient’s symptoms, the size of the cyst and whether it is infected or not. Asymptomatic cysts do not require any treatment (Hill and Lense 1998). Soaking of the genital area with warm towel compresses or in a warm bath (Sitz) is advocated by some to reduce discomfort. Analgesics may also be used to relieve discomfort.

If the gland becomes infected, treatment with broad spectrum antibiotics and analgesics will be necessary. In an observational study of 34 patients, it was shown that surgery need not be the first line of treatment, as resolution can be predicted confidently in a high proportion of patients with the conservative approach. A total of 21 patients had abscesses that were treated with metronidazole 400 mg twice daily and penicillin (or erythromycin) 250 mg four times a day. Patients with gonorrhoea were also given a stat dose of 1 g probenecid and 3.5 g ampicillin. The overall success rate marked by the absence of swelling, discomfort and appearance of a freely draining duct was 85% (Cheetham 1985).

Incision and drainage of the cyst is a relatively quick procedure that provides almost immediate relief to the patient but should be discouraged, as there is a tendency for the cyst or abscess to recur in 5–15% of cases (Stenchever 2001; Folashade et al. 2003). Definitive treatment options are marsupialisation (Hill and Lense 1998) placement of a Word catheter (Word 1968; Appgr 1994), carbon dioxide laser (Penna et al. 2002) and application of silver nitrate medication in the cavity (Yuce et al. 1994; Burak 1995). These procedures are described below.

Marsupialisation
Drainage followed by marsupialisation of the cyst or abscess has become an established method of treatment (Azzan 1978) and allows for patency of the gland to be maintained so that the function of secretion does not diminish. It was first described by Davies who used a simple generous incision and an iodine gauze pack, which was replaced twice weekly for 3 weeks, during which time, epithelialisation of the new ostium occurred (Davies et al. 1978). Later, Jacobson dissected beneath the skin flaps so as to expose the whole dome of the cyst wall before making an incision into the cyst cavity itself (Jacobson 1950). The cavity was then irrigated with warm saline solution and the cyst wall was sutured to the skin. A 5-year period of study between 1960 and 1964 concluded that marsupialisation was a safe method and had a low recurrence rate (Mathews 1966). After sterile preparation and the administration of a local anaesthetic, the cyst wall is grasped. A vertical incision is made in the vestibule over the centre of the cyst and outside the hymenal ring. The incision should be about 1.5–3 cm long, depending on the size of the cyst. After the cyst is vertically incised, the cavity drains spontaneously. The cavity should be irrigated with saline solution and any loculations should be broken up. The cyst wall is then everted and approximated to the edge of the vestibular mucosa, with interrupted absorbable sutures (Folashade et al. 2003). Although marsupialisation has been traditionally used to treat Bartholin’s cysts and abscesses, recent evidence has emerged to suggest that
incision and drainage with antibiotic cover plus primary suture of the cavity may be a better alternative. In a prospective, randomised study of 32 patients with Bartholin’s abscess, conventional marsupialisation was compared with incision plus curettage and primary suture of the cavity under antibiotic (Clindamycin) cover. Following incision of the abscess and breakdown of loculi the abscess wall was systematically curetted, the clot removed and cavity closed with 2–3 vertical mattress sutures. The needle entered the skin 1–2 cm from the wound edge and advanced under the cavity floor but avoiding penetration of the cavity itself, thereby completely obliterating the cavity and the duct. Compared with marsupialisation alone, the median time to healing was 5 days less after primary suture. Recurrence of abscesses was not more frequent and therefore making primary suturing an attractive, safe and convenient alternative treatment for Bartholin’s abscess (Andersen et al. 1992).

**Word catheter**

In 1964, Buford Word described the treatment of Bartholin’s cyst with placement of the Word catheter. The success of this device is based on the age-old principle that a foreign body in a wound that prevents closure will result in the formation of an epithelialised fistula or sinus tract (Word 1968). The stem of this rubber catheter is 2.5 cm long with a diameter of a No. 10 french Foley catheter. The small, inflatable balloon tip of the Word catheter can hold about 3 ml of saline (Figure 1). After sterile preparation and the administration of a local anaesthetic, the wall of the cyst or abscess is grasped with a small forceps, and a No. 11 blade is used to make a 5 mm (stab) incision into the cyst or abscess. It is important to grasp the cyst wall before the incision is made; otherwise the cyst can collapse, and a false tract may be created. The incision should be within the introitus external to the hymenal ring in the area of the duct orifice (Appgar 1994). If the incision is too large, the Word catheter will fall out. After the incision is made, the Word catheter is inserted, and the balloon tip is inflated with 2–3 ml of saline solution injected through the hub of the catheter. The inflated balloon allows the catheter to remain within the cavity of the cyst or abscess and the free end of the catheter can be placed in the vagina. To allow epithelialisation of the surgically created tract, the Word catheter is left in place for 4 to 6 weeks (Appgar 1994; Wilkinson and Stone 1995), although epithelialisation may occur as soon as 3–4 weeks. Coitus may be resumed after catheter insertion. If a Bartholin’s cyst or abscess is too deep, the Word catheter placement becomes impractical, and other options must be considered (Word 1968). Buford Word (1968) used this method of treatment in 68 patients harbouring 72 lesions from 1947 to 1967 and found that there were only two recurrences, one within 6 months and the other in 5 years. He concluded that the Word catheter is a simple and safe technique which prevents the closure of the stab wound for long enough to allow buttonhole epithelialisation and formation of a fistula with restoration of the physiological function of the gland. In a recent randomised controlled trial, Gennie (2005) compared the use of the rubber ring catheter (Jacob ring) to the Word catheter in the treatment of Bartholin’s abscess and found that the Jacob ring is as effective as Word catheter in treating Bartholin’s abscesses, with no clinical and statistical differences regarding catheter placement success, abscess resolution, or recurrence and it may be better tolerated than the Word catheter with greater patient satisfaction.

**Other methods of treatment**

In an attempt to find a simple inexpensive mode of management for this common gynaecological problem, various other methods of treatment have been tried in the management of Bartholin’s cysts and abscesses. In a study of 52 patients with Bartholin’s cysts or abscesses that were managed by silver nitrate stick insertion into the cyst or abscess cavity for 48 h, all patients showed complete healing within 15 days. However, two (3.8%) had recurrences within the first 2 months; one of these patients was treated with excision and the other by repetition of the same method. Silver nitrate application for Bartholin’s cysts or abscesses was found to be effective, simple and inexpensive and required the least anaesthesia, allowing it to be performed in an outpatient setting (Yuce et al. 1994). After local cleansing and infiltration of 1% lignocaine, the mucosa of 0.5–1.0 cm in length over the cyst, just anterior to the hymenal ring and inferior to the labium minus was incised with a thin edged scalpel and over the most distended and thinnest site in cases of abscesses. As the cyst or abscess was penetrated with an Ochsenh clamp, drainage of the whole cyst or abscess was performed. As the wall of the cavity was visualised, a crystalloid silver nitrate stick 0.5 cm in diameter and 0.5 cm in length was placed deep in the cavity. No sutures were employed. The mean duration of the procedure was approximately 10 ± 3.5 min. After 48 h, the vulva was cleansed and a clamp was inserted through the former incision site and the coagulated tissue with remaining silver nitrate particle was removed.

In a randomised controlled trial of 50 patients comparing excision vs intracavitary silver nitrate stick insertion, the latter was found to be as effective as excision but associated with fewer complications. It is also a simpler procedure with shorter operation and healing time. Patients were followed-up for a period of 2 years and recurrences were not found in any of the cases in both groups. With silver nitrate insertion, all patients complained of a burning sensation in the vulva on the first postoperative day. One of the 25 patients had chemical burning which healed without scar formation and fever was seen in three (12%) patients in this group.

After excision of the cyst, ecchymosis was seen in three (12%), haematoma occurred in two (8%) and febrile
morbidty occurred in six (24%) patients (Mungan et al. 1995). Efficiency and safety of alcohol sclerotherapy was compared with silver nitrate insertion in a randomised trial of 22 patients and it was concluded that with alcohol sclerotherapy, there was complete healing without any early or late morbidity and only one recurrence was recorded in the 24-month follow-up. Therefore, it is as effective as silver nitrate insertion with fewer complications, shorter duration of procedure and healing time. All 12 patients treated with alcohol sclerotherapy showed hyperaemia over the cyst or the abscess site on the second postoperative day, but resolved within 2 days. A total of 10 patients showed complete healing within 1 week, and two patients complained of severe chemical burning in the vulva on the first postoperative day and developed labial oedema and ecchymosis on the second postoperative day. Tissue necrosis appeared on the third postoperative day and progressed into total cyst necrosis. Cyst walls in these patients were expelled on the fourth postoperative day, leaving a crater of 5 mm depth, which healed completely in 1 week, with mild scar formation. Only one cyst recurrence was detected on 7 months follow-up. All 10 patients treated with silver nitrate insertion reported a burning pain on the first postoperative day and a serous discharge from the operation site lasting 2 – 4 days. Four of them developed labial oedema and ecchymosis accompanied by severe labial pain. In these patients, healing was completed with moderate scar formation over the incision site. Follow-up of 24 months revealed no recurrence. Sexual dysfunction and dyspareunia was not reported in either of these groups (Kafali et al. 2004).

Excision

Although Bartholin’s gland abscesses may rupture and drain spontaneously, recurrence is likely, and surgical excision may be necessary. Empiric broad-spectrum antibiotic therapy should be used. Excision of the Bartholin’s gland should be considered in patients who do not respond to conservative attempts to create a drainage tract, but the procedure should be performed in the absence of any active infection (Azzan 1978; Stenchever 2001). If multiple attempts have been made to drain a cyst or an abscess, adhesions may be present, making excision difficult and resulting in postoperative scarring and chronic pain in the area (Wilkinson and Stone 1995; Hill and Lense 1998). Excision can cause extreme dryness of the vulva, with severe itching, burning and dyspareunia and therefore should be considered as the last resort.

Treatment measures for a pregnant woman with a Bartholin’s cyst will depend on the severity of symptoms and whether an infection is present. Care should be exercised when surgery is necessary during pregnancy, as the increased vascularity in the genital area can lead to haemorrhage. Therefore unless infected, surgery should be delayed until after delivery.

Conclusion

Although Bartholin’s cysts and abscesses are common, research into the condition has been largely neglected. Marsupialisation has traditionally been used as the ‘gold standard’ treatment. With modern advances in treatment there is a need to compare different methods and formulate a universally accepted simple office management that is technically easy and associated with less postoperative morbidity and low recurrence rates.

References


