

## Review Article

# Bartholin gland cyst and abscess: an updated scenario

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### ABSTRACT

Bartholin glands are greater vestibular glands and are located on either side of the vaginal opening. They are mainly homologous to the bulbourethral or cowper's gland in males. These two pea-sized glands secrete mucus which is essential for vaginal lubrication. Bartholin gland cysts are one of the most frequent fluid-filled masses developing in the vulval area. They may develop as cysts first without symptoms, but if left untreated, they can be infectious and can lead to surgical corrections. The incidence rate of Bartholin gland cysts and abscesses is 0.5 per 1000 people per year. In women, it mainly affects aging between 35 and 50 years. The cysts formed due to blockage of the Bartholin gland duct, which further causes retention and cystic dilation. Mainly, the disease happens due to sexually transmitted infections. Needle aspiration, incision, and drainage are the easiest and most reliable treatment options, but they are not carried out due to their high recurrence rate. This Bartholin gland cyst can interfere with the quality of life as the person can suffer discomfort in walking, difficulty in sitting and walking, and discomfort during intercourse. Most of the Bartholin's gland cysts are also caused by the microorganisms that infect the perineal area. However, Bartholin's cyst occurs in nulliparous women of childbearing age. Women in the reproductive age group should get counselling regarding the disease to take better precautionary measures to tackle the condition.

**Keywords:** Bartholin gland cyst, Abscess, Updated scenario

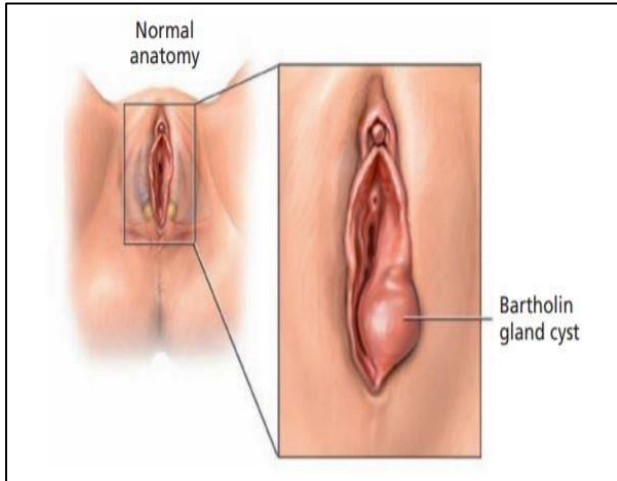
### INTRODUCTION

The Bartholin glands, which are pea-sized glands also known as the greater vestibular gland, are the vital organs of the female reproductive part.<sup>1</sup> They are located on either side of the vaginal opening at the posterior introitus, approximately at 4 o'clock and 8 o'clock, positions.<sup>2</sup> They are homologous to the bulbourethral gland, also called the cowper's gland in male.<sup>1</sup> The main function of the Bartholin gland is to provide lubrication to the vaginal vestibular surface, mainly during sexual intercourse.<sup>3</sup> Removal of the Bartholin gland does not have much impact on the lubrication of the vagina due to the other glands, like Skene's gland. Generally, Bartholin glands are non-palpable when not obstructed.<sup>2</sup>

The 2% of sexually active women develop a Bartholin gland cyst or Bartholin gland abscess in their entire

lifetime, and there are few cases of puberty-aged girls in the current time.<sup>3</sup> The intricacy of these organs begins at 30 years of age. Due to this, the women should be attentive to the feeling of malignancy. Therefore, biopsy plays a very important role in these cases; only 5% of vulvar carcinomas get a representation from the Bartholin gland cancers. The highest prevalence is among 60-year-old women; usually, it can be adenocarcinoma or squamous cell carcinoma. Due to the rarity of Bartholin gland carcinomas, the treatments and guidelines for this respective disease are still on the way to being developed. At a diversified analysis, adenocarcinoma and positive lymph nodes were associated with the worst prognosis so far.<sup>7</sup> The probability of getting a Bartholin gland cyst decreases after menopause.<sup>6</sup> The Bartholin gland cyst is generally round or ovoid-shaped. The dumbbell-shaped Bartholin gland cyst is very rare and uncommon.<sup>3</sup> Obstruction in the Bartholin gland takes place as the

distal gland duct blocks and a fluid-filled, swollen sac-like structure forms. This fluid-filled, swollen structure blocks the opening of the Bartholin gland, resulting in the accumulation of mucus produced by the Bartholin gland and the formation of a Bartholin cyst, which can further develop into an abscess. Sexually transmitted microbial infection can be the cause of recurrent Bartholin abscess in reproducing women. This Bartholin gland cyst can interfere with the quality of life as the person can suffer discomfort in walking, difficulty in sitting and walking, and discomfort during intercourse.<sup>2</sup>



**Figure 1: Anatomy of Bartholin gland cyst.**



**Figure 2: Bartholin gland cyst.**

## ETIOLOGY

It is mainly formed due to the infection taking place in the fluid-accumulated region of the perineal area inside the obstructed duct. Most of the Bartholin's gland cysts are caused by the micro-organisms that infect the perineal area.<sup>1</sup> A Bartholin gland cyst is a benign obstruction in the Bartholin gland that is most probably asymptomatic and can be suspected only during pelvic exams or imaging studies.<sup>4</sup> However, Bartholin gland's cyst can

also occur due to trauma in that respected region, episiotomy during childbirth, and sexually transmitted infections.<sup>1,8</sup> The immune system gets reacted to the bacterial infectious agents, mainly causing the obstruction leading to the formation of an abscess. Some examples of these agents are: *Neisseria gonorrhoeae*, causes gonorrhoea, a disease that gets transmitted through sexual contact. *Escherichia coli*, affecting the supply of water causing haemorrhagic colitis. *Chlamydia trachomatis*, causing *Chlamydia*. *Streptococcus pneumonia*, which causes pneumonia and middle ear infections *Haemophilus influenza*, which causes ear infections and respiratory diseases.<sup>8</sup>

According to studies, till now there is no exact identifiable cause for this Bartholin gland's cyst.<sup>1,4</sup>

## RISK FACTORS

Most probably, Bartholin's cyst occurs in nulliparous women of childbearing age. However, other risk factors include:

History of Bartholin's cyst.

History of any vaginal or vulval surgery.

A physical trauma in that affected area.

Being sexually active.<sup>1</sup>

In post-menopausal women, if a Bartholin abscess or cyst is seen, then malignancy can be expected.<sup>2</sup>

In prepubertal women, the mucus secretion from the gland will be higher and will be very adherent, increasing the risk of obstruction of the duct. It's very rare for the Bartholin gland cyst and abscess to form in prepubertal women as the gland begins to form and function.

Most frequently, the Bartholin gland's cyst and abscess are most likely seen in sexually active women, as during sexual intercourse, due to friction, oedema takes place, which sometimes blocks the passage of the Bartholin gland orifice into the vestibule, which in turn forms the Bartholin gland cyst and abscess.

The higher the probability of getting this Bartholin gland cyst in women who have multiple sex partners.<sup>2</sup>

The most prominent age for the Bartholin gland cyst to take place is between the ages of 20 and 30, mostly in women who are sexually active.<sup>1</sup>

There are many women who just neglect the Bartholin cyst or abscess, even if it causes irritation, thinking it to be a minor injury that will heal fast. Later on, this negligence can also be a risk factor for Bartholin gland cysts and abscesses.<sup>2</sup>

## **PATHOPHYSIOLOGY**

The pathogenesis of Bartholin cysts and abscesses begins at a very slow pace, starting with the swelling of the labia majora, a painful sensation, fever, and swelling of the genital vulva.<sup>3</sup> The Bartholin gland cyst and abscess are mainly formed in reproductive women and are very difficult to differentiate. The Bartholin gland cyst, which can be 2-4 cm, can cause dyspareunia, urinary infection, and pain in the external genitalia.<sup>4</sup> The pathophysiology of the Bartholin gland cyst is that first of all, the Bartholin gland orifice becomes obstructed, then mucus formation in the glands gets produced, resulting in cystic dilation of the duct and finally forming the Bartholin gland cyst.<sup>1</sup> Duct cysts are mostly not required for the development of the abscess. The abscesses are mostly common as compared to the Bartholin cysts.

Abrasion in the Bartholin glands can mostly occur in the form of polyps. Only 2-7% of vulvar carcinomas happen due to this rare type of gynaecological tumour. This growth is mostly monitored in postmenopausal women, who are mostly susceptible to Bartholin malignancy. Most Bartholin gland cancers are diagnosed at the age of 55 to 58 years of age, and the prevalence rate of getting carcinomas among women is at the age of 60. The two most common types include adenocarcinoma and squamous cell carcinoma, which account for 80-90% of cases. The remaining 10 to 20% of cases include transitional, adenoidcystic or undifferentiated carcinomas. Although benign tumours are much rarer than carcinomas.<sup>9</sup>

## **CLINICAL SIGNS**

Most of the time, the Bartholin gland cysts are asymptomatic. The symptoms vary according to the size of the Bartholin's cyst or abscess. The large Bartholin cyst causes vulvar pain mainly during walking and sitting, and it can also cause dyspareunia (pain during coitus).<sup>5</sup> Pain can also take place, mainly during taking out the tampons and sometimes also during cleaning the vagina after using the bathroom. The symptoms of an infected cyst are edema, large mass area inside vulva.<sup>3</sup>

Bartholin's abscess can generally be manifested by an acute onset of pain and difficulty passing urine. Fever, chills, redness, drainage from the cyst, and a change in size of the cyst can occur.<sup>1,6</sup> Sometimes, this cyst can undergo a spontaneous burst of the cyst, due to which the patient can typically feel relief of pain.<sup>5</sup> Sometimes the cysts are so small to be noticeable, but sometimes they can have effects on the labia, causing one lip to be larger than the other. This cyst can be non-infected until and unless it grows. When this cyst gets bigger and gets infected, it causes soreness and discomfort. Symptoms like leakage and rupturing can also take place. When the cysts transform into large mass formations, it can also cause erythema, which in turn can cause dilation of blood

capillaries.<sup>3,5-6</sup> Cyst can also be present in the form of inguinal hernia.<sup>9</sup>

In neonates, generally Bartholin duct cysts associated with dilation of the renal pelvis, calyces, and ureter occur, which causes obstruction to the free flow of urine from the kidney. This progresses to the formation of atrophy in the renal cortex, called hydroureteronephrosis, and heterolateral renal cysts can cause urinary retention. Painless masses are present in the vulva region in the case of Bartholin gland cancer. Masses, which are mostly present in the underlying tissue, tend to be malignant.<sup>9</sup>

## **DIAGNOSIS**

The main diagnosis of Bartholin cysts are: The doctor may ask about the previous medical history. The patient will be asked to perform a pelvic exam. A sample of secretions from the vagina or cervix needs to be taken to check for any sexually transmitted diseases. If the patient is over 40 or postmenopausal, then a biopsy needs to be done to check for any cancerous cells.<sup>4</sup>

The diagnosis of the Bartholin gland's cyst depends on the type of polyp formed. Mostly, women over 40 years of age are recommended for biopsy to avoid the occurrence of carcinomas, and they are also recommended for the drainage of the polyp.<sup>2</sup> As the formation of cancerous cells in the Bartholin's gland is very rare, biopsy is recommended over incision. The diagnostic criteria for Bartholin's cancer are as follows:

Primarily, the tumour must be located in the labia, where the surrounding tissue remains undamaged, and a small amount of glandular epithelium should be present.<sup>9</sup> If any indication of sexually transmitted disease is seen, then endocervical and high-vaginal swabs need to be taken.<sup>6</sup>

Differential diagnosis are considered in situations where several labia and vaginal lesions imitate the Bartholin gland's diseases. This includes different types of cysts (Skene's, sebaceous, vestibular mucosa, canal of nuck), warts, Bartholin gland's cyst, abscess, or cancer.<sup>9</sup>

## **TREATMENT MODALITIES**

The treatment for this Bartholin gland cyst depends on the patient's symptoms. Most commonly, Bartholin cysts require no treatment, especially when the cyst carries no signs or symptoms. Basically, treatment is needed depending on the size of the cyst and the discomfort it is causing, and it also needs to be checked whether it is infected or not; if infected, it can cause an abscess. A Bartholin gland cyst or abscess requires drainage; unless a rupture takes place, it can recover on its own.<sup>10</sup>

The quickest procedures that can provide immediate relief are drainage and incision. Most probably, this procedure needs to be stopped, as in this procedure, cysts can again reoccur.<sup>4,10</sup>

The treatment modalities for Bartholin gland cysts are:

### **Sitz bath**

A sitz bath is a very popular and affordable home remedy for Bartholin cysts. All that is needed is a bathtub and access to warm water.<sup>4</sup> For the sitz bath to be made, a bathtub must be filled with enough warm water to cover the vulva, approximately 2-3 inches. It's a very effective process only if the irritated area is immersed in water. The warm water will increase the healing process by increasing the blood flow in the area. Baking soda and salt can be added to the water to inhibit the growth of bacteria and reduce the risk of infection.<sup>4,8</sup> For the best possible results, soak in the sitz bath after every 10 to 15 minutes and let it get drained on its own. By that time, acetaminophen (tylenol) can be taken to provide relief from the pain.<sup>5</sup>

### **Surgical drainage**

Bartholin cyst removal is very rare and uncommon, but sometimes surgical excision is necessary. If the cyst is transformed into a large mass and is symptomatic, then a small cut is made so that the fluid can be drained. This procedure can be done by using local anaesthesia, and if a recurrence of cysts is seen, a small tube can be inserted and left there temporarily until the cyst gets drained. The patient may feel immediate relief after the procedure; somehow, the pain due to the incision will remain for some days.<sup>4,5,10</sup>

### **Marsupialization**

This procedure is used for the Bartholin gland cyst only and not for the abscess. After the local anaesthesia is administered and sterile preparation is done, the cyst wall will be held with two small clamps. A small vertical incision is made in the centre of the cyst. After the cyst is vertically cut, the cavity starts draining. The cavity can also be soaked with saline water if necessary. The formation of the cyst can be broken up through haemostasis. then stitches are placed in each side of the drainage incision to create a permanent opening less than ¼ inch. A catheter can be inserted for some days after the procedure is done to prevent the recurrence of the same.<sup>10</sup>

### **Antibiotic**

If the cyst is infected or the diagnosis reveals that the person has a sexually transmitted infection, then she can be medicated with broad-spectrum antibiotics. But if the abscess gets drained properly, then in many cases, antibiotics may not be needed.<sup>4,10</sup>

### **Bartholin gland removal**

In most cases where all above treatments are not working, If cyst is recurring continuously, it will be recommended

to remove the Bartholin gland surgically; otherwise, severe complications can arise, like infections.<sup>4</sup>

### **Word catheter**

There are certain non-surgical procedures that can be done as an outpatient under local anaesthesia to numb that area, like the insertion of an inflatable balloon. It allows a passage through which the pus can drain out in 4 weeks through the cyst or abscess.



**Figure 3: Inflated word catheter.**



**Figure 4: Bartholin cyst removal.**

When the cut is made in the skin around the cyst, allowing drainage from the cyst or abscess at that time itself, a sample is taken to check for any infection at this stage. To break the pockets of an abscess or cyst, a cotton bud is used. a flexible tube called word catheter, which is specially designed as a balloon and is inserted into the

cyst or abscess through its tip, creating a passage. The balloon is inflated with 3-4 ml of sterile fluid to keep the catheter in place. Sometimes, very rarely, a stitch may be used to partially close the cut and to keep the balloon in position. It is kept then left there for 3 to 4 weeks until and unless the cut processes to form new skin and starts healing.<sup>10</sup>

## PREVENTION

There's no way to prevent Bartholin gland cysts. However, safer sex practices, where condoms can play a very vital role, good hygiene should be maintained to prevent the infection of a cyst and the formation of an abscess.<sup>9,5</sup>

## CONCLUSION

The pea-shaped Bartholin gland that forms the cyst takes about 4 weeks to fully recover. Cyst is present as a valvular mass, but very rarely it develops into a big and gigantic mass. This cyst occurs through a polymicrobial infection. Symptoms may vary according to the discomfort the patient suffers. These cysts are usually associated with the risk of contact with sexually transmitted polymicrobial infections. Ultrasound and MRI can be options for the rarely suspected gigantic cyst. The healing and recurrence rate for the Bartholin cyst can sometimes be similar to those of fistulisation, marsupialization, and alcohol sclerotherapy. Treatment modalities for this Bartholin cyst may vary according to the current status of modern development of medicine. Needle aspiration and incision drainage can be the simplest and easiest treatments, but these treatments cannot be given because of the higher recurrence rate. The diagnosis can be based on the previous history, physical examination, and examination supporting the case. Prognosis also depends on the cure rate and recurrence rate of the patient.

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