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Our treatment outcomes in bartholin cysts or abscesses

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Abstract

The purpose of this study was to examine the outcomes of Bartholin abscess or cyst surgery, silver nitrate therapy, and cyst or abscess excision in terms of recurrence, duration of the procedure, and healing times. The files of 100 patients treated in our hospital for Bartholin cysts or abscesses between March 2022 and December 2022 were reviewed retrospectively. The patients' demographic characteristics were recorded. Demographic data, the location and size of Bartholin abscesses, complaints at presentation, and cases with recurrence were noted. The patients were divided into three groups according to the treatment applied and were compared with one another, especially in terms of recurrence, operative time, and recovery time. Group 1 consisted of those who underwent drainage due to Bartholin cyst or abscess, Group 2 of those treated with silver nitrate, and Group 3 of those who underwent cyst excision. Recurrence was detected in 12 (40%) of the cases in Group 1. Relapsed cases were treated with silver nitrate. Recurrence was observed in only one patient in the group treated with silver nitrate (Group 2). Bartholin cyst excision was performed on that patient. Mean operation times were 2.80 min in Group 1, 4.40 min in Group 2, and 23 min in Group 3 ($p=0.0001$). Mean recovery times were 3.37 ± 0.49 days in Group 1, 6.13 ± 0.73 days in Group 2, and 13.70 ± 2.09 days in Group 3 ($p=0.0001$). A comparison of the patients in all three groups revealed that the recurrence rate was higher in the group receiving abscess drainage. While recurrence was observed in only one patient in the silver nitrate group, no recurrence occurred in the cyst excision group ($p<0.001$). This study emphasizes that silver nitrate application is a simple practical method that can be performed using local anesthesia, and involving minimal scar tissue, a faster procedure time, and faster recovery.

Keywords: Bartholin cyst, bartholin abscess, treatment

Introduction

Bartholin gland cysts and abscesses are comparatively common entities, being seen in 2-3% of women [1]. These glands are homologues of the bulbourethral glands in males, are located at the 4 and 8 o'clock positions on either side of the labia minor, and drain through channels 2.0-2.5 cm in length. Vaginal lubricant mucus is secreted by the Bartholin glands during sexual stimulation and intercourse. In case of obstruction of the glands due to trauma, mucus, or edema secondary to infection, secretions accumulate and Bartholin cyst develops. Abscesses can develop due to secondary infection of a cyst in the Bartholin gland or, less frequently, to primary infection of the Bartholin gland itself.

Bartholin abscess generally develops as a result of infection of components of the vaginal flora, typically with *Escherichia coli* or *Staphylococcus* spp. Abscesses do not always develop from cysts, and are three times more common than them. Abscesses are more frequently seen due to intercourse in sexually active women [2].

Bartholin cysts are generally asymptomatic, but abscesses can cause symptoms such as pain, dyspareunia, and difficulty in walking. These painful symptoms associated with Bartholin gland cysts or abscesses can affect daily living activities. If left untreated, other severe symptoms may also rarely emerge, such as severe infection, sepsis, and rectovaginal fistula. Bartholin

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gland malignancies are generally observed in the form of a painless mass in postmenopausal women and those aged over 40. Various therapeutic methods are available, such as drainage, marsupialization, cyst excision, Word catheter insertion, and the application of silver nitrate to the cavity [3].

The purpose of this study was to investigate patient outcomes in terms of treatment methods, application durations, and recurrence rates through a retrospective examination of cases of Bartholin cyst or abscess treated in our hospital and to be able to decide on the most suitable method for the patient in the treatment of such cysts or abscesses. We encountered no previous studies comparing cyst drainage, silver nitrate therapy, and cyst excision.

Materials and Method

Following receipt of approval from the Atatürk University Medical faculty ethical committee, Türkiye, the files of 100 patients presenting to our hospital due to Bartholin cyst or abscess between March and December 2022 were examined retrospectively. Eight patients with deficient records were excluded. Two other patients were also excluded due to being older than 40 and malignancy being identified in the pathology results.

Drainage procedures were performed under local anesthesia. Patients administered silver nitrate therapy first underwent drainage under local anesthesia, following by silver nitrate application with a single suture. The patients were asked to return after 48 h, the cyst wall was removed under local anesthesia, a suture was again applied, and the procedure was terminated. Excision of Bartholin cyst or abscess was performed under general anesthesia. Vicryl 0 was employed as the suture material. Patients' demographic data, the location and size of Bartholin abscesses, presentation symptoms, and cases with recurrence were recorded. Patients were classified into three groups depending on the type of treatment received. Group 1 consisted of patients undergoing drainage due to Bartholin cyst or abscess, Group 2 of patients treated with silver nitrate, and Group 3 of patients undergoing cyst excision due to Bartholin cyst or abscess. The three groups were then compared in terms of recurrence, procedure times, and recovery times.

The study findings were analyzed on IBM SPSS version 20 statistical software. The data were expressed as mean, standard deviation, median, minimum, maximum, percentage, and number values. The normality of distribution of continuous variables was evaluated using the Shapiro Wilk-W test, the Kolmogorov Smirnov test, a Q-Q plot, skewness and kurtosis. Comparisons between two independent groups were performed using the independent samples t test in case of normal distribution and with the Mann Whitney U test when normal distribution conditions were not met. Continuous variables were compared between more than three groups using the ANOVA test when normal distribution conditions were met, or using the Kruskal Wallis test when those conditions were not met. Post-hoc tests following

ANOVA were performed using the Tukey test when variances were homogeneous, and Tamhane's T2 test when these were not homogeneous. The Kruskal Wallis one-way ANOVA (k samples) test was employed for post-hoc tests following the Kruskal Wallis test. The chi-square test was applied to compare two ratios. At 2x2 comparisons between categorical variables, the Pearson chi-square test was used if the expected value was >5 . The chi-square Yates test was applied if the expected value was between 3 and 5, and Fisher's exact test if the expected value was <3 . In case of comparisons greater than 2x2 between categorical variables, the Pearson chi-square test was applied when the expected value was >5 and the Fisher-Freeman-Halton test when this was <5 . p values <0.05 were regarded as statistically significant. The t-test was employed for parametrically distributed numerical data and the Kruskal-Wallis test for non-parametric data. The chi-square test was applied for parametric categorical data and Fisher's exact test for non-parametric data. The results were expressed as mean $\pm$ standard deviation (SD). Normally distributed variables were expressed as mean $\pm$ SD.

Results

The hospital records showed that 100 patients underwent cyst or abscess drainage, silver nitrate therapy, or cyst excision procedures due to diagnosis of Bartholin cyst or abscess in our hospital between October 2020 and October 2022. Ten patients were excluded from the study due to data deficiencies or for other reasons. The files of the 90 patients included in the study were examined retrospectively. The mean age of the patients was 29.51 ± 4.73 years. Mean gravidity and parity values were 1.72 ± 1.09 and 1.43 ± 0.91 , respectively Table 1. Eighteen patients were nulliparous, while 45 had given birth by the vaginal route, and 27 by cesarean section Table 2. Bartholin abscess was on the right side in 86 patients and on the left in four. No bilateral cases were detected. The mean diameter of the Bartholin abscesses was 3.90 cm. The mean white blood cell count during presentation was 10,033 ml/mm³. Recurrence developed in 12 (40%) of the cases in Group 1. There was a statistical difference between group 1 and group 2 and group 3 ($p < 0.001$). The least recurrence was observed in Bartholin cyst excision. The cases involving recurrence were treated with silver nitrate. Recurrence was observed in only one of the cases treated with silver nitrate in Group 2. That patient with recurrence was treated with excision of Bartholin's cyst. Mean procedural times were 2.80 min Group 1, 4.40 min in Group 2, and 23 min in Group 3. According to mean procedural times, there was a statistical difference between group 1 and group 2 and group 3 ($p = 0.001$). Mean recovery times were 3.37 ± 0.49 days in Group 1, 6.13 ± 0.73 days in Group 2, and 13.70 ± 2.09 days in Group 3. According to mean recovery times there was a statistical difference between group 1 and group 2 and group 3 ($p = 0.001$). Recurrence was greater in the group treated with Bartholin's abscess drainage. The most common presentation symptoms was palpable mass, in 100% of patients, followed by pain in 94.4% Table 2.

Table 1. Patients’ demographic data and presentation symptoms

	Group 1	Group 2	Group 3	Total (number/percentage)	p
Nulliparity	8 (26.7%)	8 (26.7%)	2 (6.7%)	18 (20.0%)	0.082
Cesarean history	10 (33.3%)	9 (30.0%)	8 (26.7%)	27 (30.0%)	0.853
Vaginal delivery	12 (40.0%)	13 (43.3%)	20 (66.7%)	45 (50.0%)	0.079
Sexually inactive	3 (10.0%)	3 (10.0%)	0 (0.0%)	6 (6.7%)	0.123
Recurrence	12 (40.0%)	1 (3.3%)	0 (0.0%)	13 (14.4%)	<0.001*
Left side	2 (6.7%)	2 (6.7%)	0 (0.0%)	4 (4.4%)	0.213
Right side	28 (93.3%)	28 (93.3%)	30 (100.0%)	86 (95.6%)	0.213
Palpable mass	30 (100%)	30 (100%)	30 (100%)	90 (100%)	
Pain	28 (93.3%)	28 (93.3%)	29 (96.7%)	85 (94.4%)	1
Dyspareunia	3 (10.0%)	2 (6.7%)	4 (13.3%)	9 (10.0%)	0.669
Smoking	3 (10.0%)	3 (10.0%)	2 (6.7%)	8 (8.9%)	0.652
Pregnancy	2 (6.7%)	1 (3.3%)	0 (0.0%)	3 (3.3%)	0.153

*P values <0.001 regarded as statistically significant

Table 2. A comparison of the three groups’ various characteristics

	Group 1	Group 2	Group 3	p
Gravidity	1.60±1.13	1.57±1.22	2.00±0.87	0.783
Parity	1.37±0.96	1.37±1.03	1.57±0.73	0.252
Age	29.27±4.47	29.30±5.13	29.97±4.70	0.728
Cyst diameter (cm)	4.02±0.99	4.38±0.99	3.30±0.48	0.000*
Operative time (min)	2.80±0.61	4.40±0.50	23.00±4.07	0.000*
Leukocyte count (ml/mm3)	10.076.0±1940.75	10020.0±1981.88	10.003±1740.49	0.985
Healing time (days)	3.37±0.49	6.13±0.73	13.70±2.09	0.000*
BMI ((kg/m2)	26.50±1.55	27.17±2.18	27.33±1.81	0.189

(mean±standard deviation)
*P<0.001 regarded as statistically significant

Discussion

The Bartholin glands are an important component of the female reproductive system, and Bartholin cysts or abscesses are an important issue in gynecological practice. Various recurrence rates are reported with different therapeutic modalities. Kroese et al. recommended incision, drainage, and Word catheter insertion as primary treatment in cases of symptomatic Bartholin cyst or abscess [4]. The traditional method is marsupialization. Recurrence rates with marsupialization are comparable to those with Word catheter insertion, at 2-25%. The advantages of Word catheter insertion include the fact it can be applied in the office, a short hospital stay, a short operative time, and the avoidance of general anesthesia. However, greater pain may be experienced following Word catheter insertion compared to marsupialization [2,5].

Ozdegirmenci et al. compared marsupialization and silver nitrate, showing that both methods are effective, but that silver nitrate application involves a shorter recovery time and causes less scar formation [5]. A faster recovery and minimal scarring were also observed with silver nitrate in the present study.

Although these are rare in Bartholin’s gland abscesses, prompt diagnosis and treatment are essential in order to avoid complications such as sepsis and rectovaginal fistula and to overcome pain in symptomatic patients. Simple incision and drainage is insufficient as primary treatment due to very high recurrence rates [6]. Very high recurrence rates were also observed on the drainage cases in the present study.

A Word catheter or Jacobi ring device can be installed under local anesthesia to re-epithelialize the canal. Another alternative is eradication of the Bartholin cyst and wall with silver nitrate. Although marsupialization may be suggested as a primary method in some cases, it is usually reserved for recurring cases. Additionally, although the Word catheter appears to represent an alternative to silver nitrate, it entails a high possibility of discomfort since the catheter remains in place for 3-4 weeks [7]. Silver nitrate is a more practical method from that perspective since it permits more rapid recovery. Excision is recommended if the cyst is larger than 4 cm and the patient is over 40. Recurrence is not observed following excision, and this method is particularly recommended in recurring cases [8]. No recurrence was observed

over two-year follow-up in the cases undergoing excision in this study. In addition, although it might be thought that secretion will be insufficient when the gland is completely removed, the Bartholin gland on the contralateral side is generally sufficient. Complications such as hematoma, bleeding, and scar formation can be seen following excision [9]. However, no complications were observed following excision in the present study. Silver nitrate therapy seems to be superior to other methods in this study in terms of application time, recovery time, scar formation, not causing discomfort like the catheter that stays in place for 3-4 weeks, and no recurrence when the cyst is completely removed.

Another technique is CO₂ laser treatment for BG abscesses is that it may be used to either vaporize or excise the lesion. It was reported that this surgical procedure is simple and fast and can be performed with minimal intraoperative and postoperative patient discomfort [10].

BG cysts successfully treated using a CO₂ laser with a high long-term cure rate [11] and subsequently prospectively evaluated ultrasound characteristics and behavioral habits associated with recurrence [12].

Additionally Speck et al. reported that O₂ laser surgery was effective to treat Bartholin gland cysts with minimal or no complications, and can be performed at an outpatient's setting [13].

Long et al showed that advantage of CO₂ laser treatment with Bartholin gland cysts is short procedure time but disadvantages are highcost of laser, operator experience dependent, presence of scar tissue and moderate recurrence rate [7].

Conclusion

In conclusion, treatment must be individualized, and the decision must be based on the practicality of the different therapeutic modalities and the experience of the operator. This study emphasizes that silver nitrate application is more advantageous than the other methods, being more practical, involving a shorter recovery time with less scar formation, and having a shorter application time. It also does not require general anesthesia, the procedure is simpler, and hospital stay is shorter. Traditional methods such as drainage are not recommended due to their high recurrence rates. Cystectomy is particularly recommended in recurring cases and in patients aged 40 or more due to the possibility of malignancy. Studies comparing treatment techniques in Bartholin gland cyst or abscess are limited. Further research with larger patient numbers is now needed to establish an effective treatment for Bartholin cysts or abscesses.

Conflict of Interests

The authors declare that there is no conflict of interest in the study.

Financial Disclosure

The authors declare that they have received no financial support for the study.

Ethical Approval

Approval was obtained with the decision of Atatürk University Faculty of Medicine Clinical Research Ethics Committee dated 30.03.2023 and numbered B.30.2.ATA.0.01.00/230.

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