Journal of Gynecology Obstetrics and Human Reproduction 48 (2019) 631–635

Available online at
ScienceDirect
www.sciencedirect.com

Elsevier Masson France
EM|consulte
www.em-consulte.com/en

Original Article

Surgical management of Bartholin cysts and abscesses in French university hospitals

Claire Cardaillac[a], Vincent Dochez[a,b], Pauline Gueudry[a,b], Edouard Vaucel[a], Stéphane Ploteau[a,b], Norbert Winer[a,b], Thibault Thubert[a,b,*]

[a] Department of Gynecology-Obstetrics and Reproductive Medecine, 38 boulevard Jean Monnet, 44000, Nantes, France
[b] Nantes Medical University, France

ARTICLE INFO

Article history:
Received 14 January 2019
Received in revised form 9 March 2019
Accepted 20 March 2019
Available online 29 March 2019

Keywords:
Cyst
Abscess
Bartholin gland
Marsupialization

ABSTRACT

Objectives: To assess the methods used to manage Bartholin gland abscesses and cysts in French university hospitals.

Method: Data for this descriptive, cross-sectional study with self-reported data were collected between January and March 2018 by an online questionnaire. The 11 items of the questionnaire assessed the surgical techniques known and used, the type of hospitalization, and the non-surgical management to treat Bartholin gland abscesses and cysts.

Results: Overall, 116 obstetrics-gynecology residents responded to the online questionnaire. The three best-known techniques were incision and drainage, marsupialization, and excision of the Bartholin gland. Only 3% of the physicians knew about other techniques. Most participants reported that their unit treated 2–6 Bartholin gland abscesses monthly and fewer than 2 cysts. The most frequent treatment for abscess was incision-drainage (87%), followed by marsupialization (13%). The most widely used treatment for the cysts was gland excision (68.5%) followed by marsupialization (22.5%). In both cases, management generally took place on an outpatient basis (92.9%).

Conclusion: This study showed that 87% of the respondents used incision-drainage for Bartholin gland abscesses, although the recurrence and complication rates of this technique have never been evaluated.

Introduction

Abscesses and cysts of the Bartholin gland are relatively frequent [1]. Although their risk factors and epidemiology have been studied only sparsely, the cumulative lifetime risk appears to be around 2% [1]. Among the risk factors identified are age (especially 20–29 years), never having been pregnant, and diabetes [2]. Types of management of symptomatic Bartholin gland abscesses and cysts vary between countries and between health care providers. Among the possible treatments, some can be performed during outpatient visits (placement of a Word catheter or Jacobi ring, simple needle aspiration), while others must be performed in an operating room (incision-drainage, gland excision, marsupialization, alcohol sclerotherapy, CO_2 laser vaporization, and silver nitrate application) and require either traditional or outpatient hospitalization. A meta-analysis by Wechter et al. published in 2009 inventoried all of the studies assessing these different techniques [3]. The selected articles were principally case series [4–7], retrospective cohort studies, and small randomized trials [8–11]. They reported highly variable recurrence rates ranging from 0 to 38%. The authors could not conclude that any surgical technique was superior to any other. Since then, despite the paucity of studies focused on these lesions, one recent randomized trial compared the use of the Word catheter to marsupialization [11]. It reported similar recurrence rates at 1 year: 12% for the Word catheter and 11% for marsupialization (P = NS).

In view of the multiple existing treatments and the absence of evidence that any treatment is superior to any other, our objective was assess the practices used for managing Bartholin gland abscesses and cysts in French university hospitals.

Material and methods

This cross-sectional descriptive study collected self-reported data from residents in obstetrics-gynecology practicing in French university hospitals from January through March 2018. An online

* Corresponding author at: Department of Gynecology-Obstetrics and Reproductive Medecine, 38 boulevard Jean Monnet, 44000, Nantes, France.
E-mail address: Thibault.thubert@chu-nantes.fr (T. Thubert).

http://dx.doi.org/10.1016/j.jogoh.2019.03.022
2468-7847/

questionnaire was created at the Google Forms® polling site and distributed by email to members of the Association of Gynecologists-Obstetricians in Training (AGOF, 512 members) at the 26 French university hospital centers. All responses were analyzed, whether or not all questions had been answered. The questionnaire comprised 3 parts including 11 items: The first part reported information about the hospitals (2 items). A second part collected the different types of management of Bartholin gland abscesses in each city (6 items): the surgical techniques they knew and those they used, type of hospitalization, nonsurgical management (antibiotic therapy, nursing care). A third part collected the different types of management of Bartholin gland cysts in each city (3 items): the surgical techniques known and used, and the type of hospitalization. These items are reported in Appendix 1 in Supplementary material. The eight different surgical techniques identified in the literature were proposed in both parts 2 and 3: incision-drainage, marsupialization, excision of the Bartholin gland, simple needle puncture, alcohol sclerotherapy, silver nitrate application, and fistulization by either the Word or Jacobi ring catheter. The responses for each question were closed. These were single- or multiple-choice responses. The link to the questionnaire was sent by email on January 29 and again on March 4, 2018, to the AGOF members.

Our principal objective was to determine the technique used most frequently in French university hospitals to manage Bartholin gland abscesses and its modalities (hospitalization and type of follow-up).

A data table was produced with the Google Form® platform. The statistical analyses were performed and the figures created with Excel software (version 16.10).

Results

Among the 512 residents in French university hospitals on the AGOF email list, 116 (23.2%) completed the online questionnaire. Their social and demographic characteristics are reported in Table 1 together with the number of surgical procedures and the preferred practices at each center. Residents from 24 of the 26 French university hospital centers completed the questionnaire. All regions were represented. The participants did not know all of the available surgical techniques, as Fig. 1 illustrates. The three best-known techniques were incision and drainage, marsupialization, and gland excision. The other techniques were known by fewer than 3% of the participants.

The number of abscesses treated surgically varied widely between centers (Table 1). Most centers treated from 2–6 abscesses surgically each month (64.1%). Nonetheless, 6% of the participants reported their center treated more than 10 a month. The most frequent treatment for abscess was incision-drainage (86.4%), followed by marsupialization (13.6%). No one reported using any other techniques. Perioperative management is detailed in Table 2. Most women were hospitalized on an outpatient basis (93.1%), but none treated during a simple office visit that did not require admission, even on an outpatient basis. More than half the participants considered that around 10–20% of abscesses can be handled by antibiotic treatment alone without requiring surgery (Fig. 2). The antibiotics principally prescribed as either the only treatment or as antibiotic prophylaxis for surgery were pristinamycin (Pyostacine®) (66.7%) followed by amoxicillin and clavulanic acid (Augmentin®) (49.6%) (Table 2). The prescription of other classes of antibiotic agents was much rarer. Table 2 describes the postoperative management. Two principal forms of management were found: removal of the dressing followed by washing daily until healing (52.9%) and washing with a new dressing applied daily until healing (42%).

Fewer cysts than abscesses were treated surgically (Table 1). Among the participants, 79.3% reported their center treats 0–2 cysts a month. Only 6% treated more than 4 cysts a month. The most common treatment was gland excision (69.3%), followed by marsupialization (21.9%), and finally, much less often, incision-drainage (7%). The women treated for cysts were nearly all hospitalized on an outpatient basis (93.1%). Management in standard office visits was almost nonexistent (1.7%) (Table 2).

Discussion

The literature describes several types of treatments for Bartholin gland abscesses and cysts. No recent clinical practice

Table 1
Social and demographic characteristics of the population responding to the questionnaire and their hospitals.

Characteristics		Number of subjects	Percentage
Regions (n = 118)	Ile-de-France	9	7.6%
	Northwest	45	38%
	Northeast	29	24.6%
	Southeast	22	18.8%
	Southwest	10	8.5%
	French overseas departments and territories	3	2.5%
Number of abscesses treated surgically per month (n = 117)	0–2	20	17.1%
	2–4	44	37.6%
	4–6	31	26.5%
	6–8	10	8.5%
	8–10	5	4.3%
	>10	7	6 %
Number of cysts treated surgically per month (n = 116)	0–2	92	79.3%
	2–4	17	14.7%
	4–6	5	4.3%
	6–8	2	1.7%
	8–10	0	0%
	>10	0	0%
Surgical treatment performed most frequently for an abscess (n = 118)	Incision-drainage	102	86.4%
	Marsupialization	16	13.6%
	Other techniques	0	0%
Surgical treatment performed most frequently for a cyst (n = 111)	Incision-drainage	8	7%
	Marsupialization	25	21.9%
	Excision of the Bartholin gland	79	69.3%
	Simple needle aspiration	2	1.8%
	Other techniques	0	0%

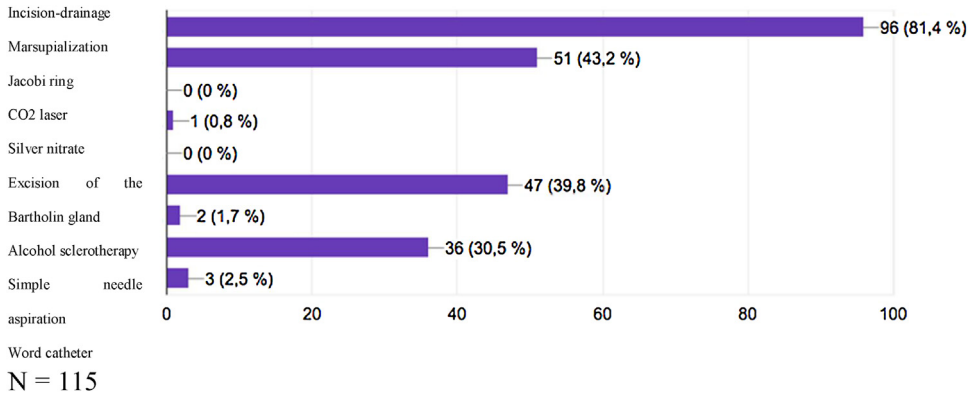

Fig. 1. Surgical technique known by the participants.
Incision-drainage Marsupialization Jacobi ring CO2 laser Silver nitrate Excision of the Bartholin gland Alcohol sclerotherapy Simple needle aspiration Word catheter. N = 115.

Table 2
Perioperative management of women treated for a Bartholin gland abscess or cyst.

		Number of respondents	Percentage
Type of hospitalization for cyst (n = 116)	Standard hospitalization	6	5.2%
	Outpatient hospitalization	108	93.1%
	Consultation	2	1.7%
Type of hospitalization for abscess (n = 118)	Standard hospitalization	30	25.4%
	Outpatient hospitalization	88	74.6%
	Consultation	0	0%
Postoperative care (n = 119)	Ablation of the dressing on D1 and then washing until healing	63	52.9%
	Washing with new dressing daily until healing	50	42%
	No local care	14	11.8%
Antibiotic treatment prescribed for abscess (n = 117)	Amoxicillin	7	6%
	Pristinamycin	78	66.7%
	Amoxicillin-clavulanic acid	58	49.6%
	Fucidin	4	3.4%
	Other	2	1.7%

guidelines have been issued in France for these disorders. The National College of French Gynecologists-Obstetricians (CNGOF) last issued updates in 2007 [12] and 2009 [13]. In 2009, it recommended performing incision-drainage of an abscess only in cases of a risk of systemic infection with a major inflammatory syndrome in women at risk for various reasons. In all other cases, fistulization (Word catheter) or marsupialization should be preferred. Nonetheless, our results show that practices are not consistent with these guidelines: incision-drainage is by far the most common treatment technique used in France (86.4%) for an abscess of the Bartholin gland. Astonishingly, an examination of the literature found no prospective evaluation of this specific surgical technique. A single retrospective study assessed the results of incision-drainage for a Bartholin gland abscess in a small sample (n = 18) and observed an 11% recurrence rate at 6 months [9]. Nonetheless, the surgical technique was slightly different from that usually practiced, as it also involved a suture of the cavity. The French technique involves only an incision of the abscess, following by draining, irrigating it abundantly, and dressing it.

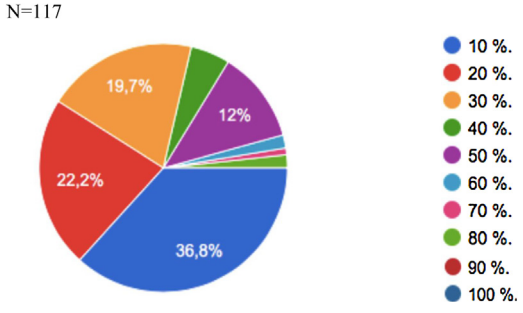

Fig. 2. Rate of Bartholin gland abscesses requiring only antibiotic therapy, according to the respondents.
N=117.

The technique of fistulization of either an abscess or cyst with a silicone catheter (Word catheter) or a Jacobi ring catheter is little known in France. Only 2.6% of the participants were aware of this technique, and none had placed more than 5 catheters since they began training. In the English-language literature, it is nonetheless the technique evaluated most frequently, together with marsupialization, which consists of suturing the edges of the abscess or cyst to the vulvar mucosa. It is performed as a first-line treatment by 13.6% of participants for abscesses and by 7% for cysts. In a recent randomized trial, Kroese et al. compared the management of Bartholin gland abscesses or cysts by Word catheter and marsupialization [11]. The recurrence rate at one year was similar in both groups (12% in the catheter group vs. 10% in the marsupialization group, $P = 0.70$). A Word catheter reduced the use of analgesics during the first 24 h (33% vs 74%, $P < 0.001$), with a shorter time to treatment (1 h vs. 4 h, $P = 0.001$).

Alternative techniques such as CO_2 laser vaporization of the shell of a Bartholin gland cyst after incision appear to have identical recurrence rates and fewer hemorrhagic complications than other techniques [14,15]. Nonetheless the studies assessing it have had small sample sizes. Sclerotherapy of the cyst cavity by injecting 70% alcohol may result in an recurrence rate (8–10% at 7 months) identical to that of other techniques, with a 20% risk of hematoma found in the 2 retrospective studies [16,17]. According to the CNGOF 2007 update [12], these techniques have not been

validated for routine practice in France. In our study, they were used quite rarely, with fewer than 2% of the participants aware of their existence.

Other more radical techniques involving excision of the Bartholin gland have also been described. This excision can be performed in various ways, including surgically, or by application of silver nitrate or CO_2 laser vaporization. These techniques have been evaluated in women with Bartholin gland cysts or abscesses in a prospective randomized trial of 50 women [18] and in 2 retrospective studies [19,20]. A recurrence rate of 0–3% was found with a minimum follow-up of 2 years. Hematomas have been reported in 2–8% of the women and sequelae of dyspareunia in 8–16%. In France, classic surgical excision is practiced almost exclusively for Bartholin gland cysts. According to 69.3% of the respondents, it is the first-line treatment for such a cyst.

According to the 2007 CNGOF update [12], simple needle aspiration should be limited to preoperative use to reduce pain before moving into the operating theatre due to its high recurrence rate. Only 1.8% of the participants in our study performed this procedure as an exclusive curative treatment.

The same guidelines [12] recommend that antibiotics be used only with surgery. In our study, 40.4% of the participants questioned considered that more than 20% of Bartholin gland abscesses could be treated solely by antibiotic therapy, without any surgery. The treatments prescribed was very variable. In most cases, pristinamycin (Pyostacine®) was prescribed, with amoxicillin-clavulanic acid (Augmentin®) ranked second. Large proportion of Bartholin gland abscesses are bacterial culture positive with *Escherichia coli*. No recent recommendations in France cover the antibiotic therapy to prescribe as a first-line treatment in the case of a Bartholin gland abscess or cyst.

The vast majority of participants in this study (93.1%) reported that the women treated for these lesions were hospitalized on an outpatient basis. Equivalent inexpensive techniques, such as the Word catheter (€30 TTC) can be performed at simple outpatient consultations. An Austrian micro-costing study, using software that calculates the cost of a procedure compared with the revenues), compared marsupialization with the Word catheter and found the former costs 5–7 times more [21]. The French hospital discharge summary database PMSI) reported 4408 Bartholin gland abscesses (m = 4408) managed in France in 2016 and 2858 cysts. Accordingly, modification of French practices might save up to 10 million euros annually. A medical-economic study comparing incision-drainage to the Word catheter would be necessary to assess this cost-effectiveness ratio.

The number of Bartholin gland abscesses treated monthly reported by the respondents did not match the numbers reported by the PMSI in 2016. That is, 45.3% of the respondents reported that their university hospital treated more than 4 abscesses monthly, although according to the PMSI, only the hospitals in Lyon (4.5 abscesses/month), Toulouse (4.41), and Martinique (4.75) had rates that high. This may be explained by poor coding by staff of a procedure often performed in an emergency situation.

The principal study limitations are linked to its methodology and design. Participation rates for online questionnaires are low. Our response rate (23.2%) is relatively normal for this type of study [22,23]. A low response rate from residents working in Ile de France and Southwest has been noticed with no explanation. Bartholin gland abscesses and cysts are frequent, but the surgical procedure of drainage (regardless of the technique used) is neither complex nor stimulating for the physician. This may explain the lack of articles assessing incision-drainage of these abscess, although it is the principal technique used in France. Moreover, we targeted residents in obstetrics and gynecology as our study population because they perform most of the first-line treatment in these procedures. Nonetheless, because they work in university hospitals, all public in France, their practices may be somewhat different from those of obstetrician-gynecologists in private facilities.

Conclusion

In light of the differences in practices we found in France compared with the international literature, a prospective study appears necessary to compare incision-drainage for an abscess of the Bartholin gland with another treatment that has proven effective. No prospective study has assessed the French technique of incision-drainage for its rates of recurrence and secondary complications (recurrence, sexual function, infections, etc.). The Word catheter appears to be an ideal object of comparison, given its low cost and the fact that can be used during a simple visit, without the need for general anesthesia or outpatient hospitalization. If its effectiveness in terms of recurrence rate is similar, the medical economic interest of this technique could encourage a change in French practices.

Declaration of interests

The authors report they have no conflict of interests.

Acknowledgments

We thank AGOF for having allowed the distribution of the online questionnaire to the residents of gynecology and obstetrics in France.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:https://doi.org/10.1016/j.jogoh.2019.03.022.

References

[1] Kaufman R. Benign Diseases of the Vulva and Vagina. 4 th, Mosby, St-Louis; n. d., p. 148–68.
[2] Roberts DB, Hester LL. Progressive synergistic bacterial gangrene arising from abscesses of the vulva and Bartholin's gland duct. Am J Obstet Gynecol 1972;114:285–91.
[3] Wechter ME, Wu JM, Marzano D, Haefner H. Management of Bartholin duct cysts and abscesses: a systematic review. Obstet Gynecol Surv 2009;64:395–404, doi:http://dx.doi.org/10.1097/OGX.0b013e31819f9c76.
[4] Jacobson P. Marsupialization of vulvovaginal (Bartholin) cysts: report of 140 patients with 152 cysts. Am J Obstet Gynecol 1960;79:73–8.
[5] Yavetz H, Lessing JB, Jaffa AJ, Peyser MR. Fistulization: an effective treatment for Bartholin's abscesses and cysts. Acta Obstet Gynecol Scand 1987;66:63–4.
[6] Cho JY, Ahn MO, Cha KS. Window operation: an alternative treatment method for Bartholin gland cysts and abscesses. Obstet Gynecol 1990;76:886–8.
[7] Downs MC, Randall HW. The ambulatory surgical management of Bartholin duct cysts. J Emerg Med 1989;7:623–6.
[8] Ozdegirmenci O, Kayikcioglu F, Haberal A. Prospective randomized study of marsupialization versus silver nitrate application in the management of Bartholin gland cysts and abscesses. J Minim Invasive Gynecol 2009;16:149–52.
[9] Andersen PG, Christensen S, Detlefsen GU, Kern-Hansen P. Treatment of Bartholin's abscess. Marsupialization versus incision, curettage and suture under antibiotic cover. A randomized study with 6 months' follow-up. Acta Obstet Gynecol Scand 1992;71:59–62.
[10] Haider Z, Condous G, Kirk E, Mukri F, Bourne T. The simple outpatient management of Bartholin's abscess using the word catheter: a preliminary study. Aust N Z J Obstet Gynaecol 2007;47:137–40, doi:http://dx.doi.org/10.1111/j.1479-828X.2007.00700.x.
[11] Kroese JA, van der Velde M, Morssink LP, Zafarmand MH, Geomini P, van Kesteren P, et al. Word catheter and marsupialisation in women with a cyst or abscess of the Bartholin gland (WoMan-trial): a randomised clinical trial. BJOG 2017;124:243–9, doi:http://dx.doi.org/10.1111/1471-0528.14281.
[12] Descamps P, Racine-Thibaud AC, Eglin G, Catala L, Sentilhes L, Mezzadri M. Conduite à tenir devant une bartholinite. Extrait des Mises à jour en Gynécologie Médicale. Coll Natl Gynécol Obstét Français 2007;2007:15–26.
[13] Eglin G. Marsupialisation ou ablation de la glande de Bartholin: techniques chirurgicales et indications. Extrait des Mises à jour en Gynécologie et Obstétrique. Coll Natl Gynécol Obstét Français 2009;33:287–99.

[14] Frega A, Schimberni M, Ralli E, Verrone A, Manzara F, Schimberni M, et al. Complication and recurrence rate in laser CO2 versus traditional surgery in the treatment of Bartholin's gland cyst. Arch Gynecol Obstet 2016;294:303–9, doi:http://dx.doi.org/10.1007/s00404-016-4045-6.
[15] Fambrini M, Penna C, Pieralli A, Fallani MG, Andersson KL, Lozza V, et al. Carbon-dioxide laser vaporization of the Bartholin gland cyst: a retrospective analysis on 200 cases. J Minim Invasive Gynecol 2008;15:327–31, doi:http://dx.doi.org/10.1016/j.jmig.2008.02.005.
[16] Kafali H, Yurtseven S, Ozardali I. Aspiration and alcohol sclerotherapy: a novel method for management of Bartholin's cyst or abscess. Eur J Obstet Gynecol Reprod Biol 2004;112:98–101.
[17] Cobellis PL, Stradella L, De Lucia E, Iannella I, Pecori E, Scaffa C, et al. Alcohol sclerotherapy: a new method for Bartholin gland cyst treatment. Minerva Ginecol 2006;58:245–8.
[18] Mungan T, Uğur M, Yalçin H, Alan S, Sayilgan A. Treatment of Bartholin's cyst and abscess: excision versus silver nitrate insertion. Eur J Obstet Gynecol Reprod Biol 1995;63:61–3.
[19] Penna C, Fambrini M, Fallani M. CO2 laser treatment for Bartholin's gland cyst. Int J Gynecol Obstet 2002;76:79–80, doi:http://dx.doi.org/10.1016/S0020-7292(01)00485-4.
[20] Rouzier R, Azarian M, Plantier F, Constancis E, Haddad B, Paniel B-J. Unusual presentation of Bartholin's gland duct cysts: anterior expansions. BJOG 2005;112:1150–2, doi:http://dx.doi.org/10.1111/j.1471-0528.2005.00622.x.
[21] Reif P, Ulrich D, Bjelic-Radisic V, Häusler M, Schnedl-Lamprecht E, Tamussino K. Management of Bartholin's cyst and abscess using the Word catheter: implementation, recurrence rates and costs. Eur J Obstet Gynecol Reprod Biol 2015;190:81–4, doi:http://dx.doi.org/10.1016/j.ejogrb.2015.04.008.
[22] Bardy-Evrard C, Mattuizzi A, Coatleven F, Nithart A, Evrard G, Benachi A, et al. État des lieux du ressenti et des pratiques des gynécologues-obstétriciens face au dépistage prénatal non invasif en France. Gynécol Obstét Fertil Sénol 2018;46:34–40, doi:http://dx.doi.org/10.1016/j.gofs.2017.11.002.
[23] Chene G, de Rochambeau B, Le Bail-Carval K, Beaufils E, Chabert P, Mellier G, et al. État des lieux de la salpingectomie prophylatique en France. Gynécol Obstét Fertil 2016;44:377–84, doi:http://dx.doi.org/10.1016/j.gyobfe.2016.05.003.