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Management of Bartholin Duct Cysts and Abscesses

A Systematic Review

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Objective. To review systematically the literature, published in English, on recurrence and healing after treatment of Bartholin duct cysts and abscesses.

Data Sources. We searched PubMed, EMBASE, CINAHL, LILACS, Web-of-science, the Cochrane database, and POPLINE from 1982 until May 2008. We searched the internet, hand-searched reference lists, and contacted experts and authors of relevant papers to detect all published and unpublished studies.

Methods of Study Selection. We included any study with at least 10 participants, addressing either frequency of recurrence or healing time after treatment of Bartholin duct cyst or abscess. We followed MOOSE (meta-analysis of observational studies in epidemiology) guidelines. Of 532 articles identified, 24 studies (5 controlled trials, 2 cohort studies, and 17 case series) met all inclusion criteria. Study size ranged between 14 and 200 patients.

Tabulation, Integration, and Results. The interventions included: (1) Silver nitrate gland ablation, (2) cyst or abscess fenestration, ablation, or excision using carbon dioxide (CO₂) laser, (3) marsupialization, (4) needle aspiration with or without alcohol sclerotherapy, (5) fistulization using a Word catheter, Foley catheter, or Jacobi ring, (6) gland excision, and (7) incision and drainage followed by primary suture closure. The reported frequency of recurrence varied from 0% to 38%. There was no recurrence after marsupialization in available studies. Recurrence after other treatments varied, and was most common after aspiration alone. Healing generally occurred in 2 weeks or less.

Conclusion. There are multiple treatments for Bartholin duct cysts and abscesses. A review of the literature failed to identify a best treatment approach.

Target Audience: Obstetricians & Gynecologists, Family Physicians

Learning Objectives: After completion of this article, the reader should be able to identify seven different treatments for Bartholin duct cysts or abscesses, contrast treatment choice complications and recurrence risks for the different options for treatment of Bartholin duct cysts or abscesses, and point out the limited quality and quantity of data upon which to choose best practices.

Symptomatic enlargement of Bartholin ducts, most commonly due to cyst or abscess formation, represents a common management dilemma in gynecology. Although a prevalence of 2% is often quoted, the origin of

this number, its context, and recent estimates of prevalence are difficult to find. Clearly defined risk factors are similarly elusive; however, the risk profile is similar to those of women at risk for sexually transmitted diseases (1).

Treatment of the symptomatic Bartholin duct cyst or abscess also may prove challenging, demanding time, anesthesia, and exposure. There are many options for treatment, including antibiotics and soaks, simple drainage, fistulization to create a new duct opening, marsupialization, and excision of the gland. Destruction of the cyst or abscess base with silver nitrate or alcohol has also been used. Some providers favor the use of a carbon dioxide (CO₂) laser to accomplish cyst ablation or fenestration or gland excision. Despite the available treatment options, reported recurrences are common (2,3), and prolonged healing interrupts daily activities and intercourse. The choice of treatment for Bartholin duct cysts and abscesses remains difficult.

Our intent with this systematic review is to clarify the existing evidence on which to base treatment of symptomatic Bartholin duct cysts and abscesses. We performed a thorough, transparent search for all available literature published in English in the last 26 years. Specifically, our research questions were: (1) what percentage of treated Bartholin duct cysts or abscesses recurs, according to treatment method; and, (2) what is the duration of time to accomplish healing, according to the treatment method. We also sought answers to secondary questions including: what is the approximate procedure time for each treatment; which treatments are accomplished as outpatients; and what complications are associated with the different therapies.

SOURCES

The first author and a university-employed librarian independently performed the literature search for this review. We searched the following databases from 1982 (or the earliest available from 1982 forward) until May 2008: PubMed, EMBASE, CINAHL, LILACS, Web-of-science, the Cochrane database, and POPLINE. For the PubMed search, we used the MESH heading

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“Bartholin glands” with an inclusive key word, “bartholin*,” combined with MESH headings “cysts” and “abscess” as well as the key words “cyst” or “cysts” or “abscess*” or “gland*” or “duct*.” We combined these results with a search for key words pertaining to treatment: (“treatment*” or “therapy” or “technique*” or “management”) along with the related articles feature in PubMed and hand-searched reference lists of obtained full-text articles and reviews. We contacted authors of relevant papers and experts on vulvar pathology to detect unpublished studies, and searched the internet for additional studies.

STUDY SELECTION

We included any study with the outcomes of interest related to the treatment of a Bartholin duct cyst or abscess that included at least 10 participants and was published in English within the last 26 years. We excluded case reports and studies on non-Bartholin vulvar pathology, Bartholin gland malignancy, or Bartholin disorders other than cysts or abscesses (e.g., leiomyoma, hyperplasia, or endometriosis of the Bartholin gland).

The authors worked together independently and collectively to evaluate and qualify the articles identified. A “quality” designation was based on criteria including study design, study size, randomization method and concealment of allocation, defined intervention and outcome, follow up, and the potential for bias. “Quality” was described in prose, guided by a 5-tier scale (1 being a well-done randomized controlled trial with allocation concealment and 5 being a small, descriptive study with little available data.) Comparative studies were evaluated for similarities that might allow inclusion in a meta-analysis. We followed MOOSE guidelines for observational studies in completing this review and used descriptive statistics to describe findings (4).

RESULTS

Our combined search of databases yielded a total of 569 article titles. We scanned the first 400 headings from our internet search and identified 1 duplicate study (5). We identified no unpublished studies and no additional studies from contact with experts and authors. We limited identified titles by excluding duplicates, studies published before 1982, and case reports or studies of Bartholin gland malignancy or non-Bartholin vulvar pathology. An additional 12 studies, published in foreign languages were excluded, 5 of which, by abstract, would have been appropriate for

full-text review if available in English (6–10). Of the 87 remaining studies, we evaluated abstracts, when available, and excluded narrative reviews, patient handouts, tutorials, commentaries, presentation of the same study group (within 10 participants) (5,11), study size less than 10 (12), and any study not evaluating a treatment for Bartholin duct cyst or abscess or not presenting at least one of the primary outcomes of interest (13). We excluded 2 abstracts, presented at scientific meetings, for which a full-text was not available and which either did not describe our primary outcomes (14) or did not present healing time nor a reliable denominator for determining recurrence frequency (15).

From the remaining 35 full-text articles, we selected the 24 that met all inclusion criteria. Studies eligible for this review included 5 controlled trials, 2 cohort studies, and 17 case series. Study size ranged from 14 to 200. The interventions were: (1) silver nitrate gland ablation; (2) gland or duct fenestration, ablation, or excision using carbon dioxide (CO₂) laser; (3) marsupialization or “window operation”; (4) needle aspiration, with or without alcohol sclerotherapy; (5) fistulization using a Word catheter, Foley catheter, or a Jacobi ring; (6) gland excision by traditional technique; and, (7) incision and drainage followed by primary suture closure. The quality of the studies ranged from 2 to 5. Randomized controlled trials were too dissimilar in intervention type, study design, population, and pathology distribution to allow meta-analysis (Tables 1–6).

The percentage of women who reported a history of previous Bartholin gland disorder or treatment for such was between 13% and 63%. The mean time to accomplish healing ranged from 4.8 days (16) to 2.2 weeks (17) (Tables 1–6). When provided, the definition of “healed” included such descriptions as “cessation of secretions and epithelialization of the wound” (18), “complete regeneration of the vulvar tissue” (19), and “absence of swelling and discomfort and the appearance of a freely draining duct” (20). The recurrence after treatment ranged from none to 38%, with the highest frequency of recurrence occurring after treatment by aspiration (21). No data on cost were given. Cultures from the Bartholin abscesses, when reported, were polymicrobial and antibiotic use varied.

Silver Nitrate Gland Ablation

Four case series and 2 controlled trials evaluated silver nitrate ablation of Bartholin duct cysts and abscesses measuring between 3 and 8 cm (16,18,22–

25). Patients’ mean age was between 28 and 34 years. Treatment was almost universally outpatient (18), and local anesthesia was used for all but select patients in 1 study (24). Antibiotics were given for abscesses only. Following a 1- to 2-cm linear incision in the vulvar skin and cyst wall, the Bartholin duct cyst or abscess was penetrated and evacuated. A 0.5 × 0.5 cm stick of crystalloid silver nitrate was then inserted into the cavity. The residual silver nitrate and coagulated cyst capsule were commonly removed or spontaneously expelled (22), at 2 to 3 days. Silver nitrate treatment generally took 15 minutes or less.

Healing after silver nitrate was usually accomplished within 10 days. With 143 patients represented and follow-up of at least a year in all 6 studies, 4 studies reported no recurrence. In each of 2 case series, 4% of women had recurrent gland pathology within the first 2 months of treatment. The most common adverse effects were vulvar burning on the first postoperative day and labial edema. Inadvertent cautery of vulvar mucosa occurred in 20% of patients in 1 small series (22). Hemorrhage was reported in 4% to 5% of patients (23,24). In the controlled trials, silver nitrate gland ablation under local anesthesia was significantly faster than excision with general anesthesia (7.3 ± 2.0 vs. 20.8 ± 4.7 minutes, $P < 0.001$) with significantly faster healing (6.5 ± 1.3 vs. 11.1 ± 1.8 days, $P < 0.001$) (18). Compared with alcohol sclerotherapy under local anesthesia, in 1 small series, silver nitrate treatment was significantly slower (15 ± 3 vs. 7 ± 2 minutes, $P < 0.001$) with slower healing (9.2 ± 2.5 vs. 4.8 ± 1.3 days, $P < 0.001$) (16) (Table 1).

Carbon Dioxide Laser

Six case series and a retrospective cohort evaluated the outpatient treatment of Bartholin duct cysts and abscesses using a CO₂ laser (17,19,26–30). The largest case series (30) included 48 patients for which outcomes had been previously reported (19). Mean patient age was between 32 and 37 years with mean cyst/abscess diameter between 3.5 and 6.3 cm (range, 2–15 cm). The laser was used to create an opening in the vulvar skin in the area of the duct orifice. The Bartholin duct cyst was evacuated and then either vaporized (17,19,26–30), excised (19), or left intact after fenestration (26). Local anesthesia was used in nearly all patients (97%), and antibiotics were given in the setting of abscess or multiloculated cysts (26,28,30). Laser procedures averaged 17 minutes or less (Table 2).

TABLE 1
Silver nitrate gland ablation for treatment of Bartholin duct cysts and abscesses

Author, yr, Location, Study Design, Study Size	Previously Treated for Bartholin Pathology	No. Cysts vs. Abscesses	Intervention	Study Characteristics	Time to Healing (d)*	Recurrences n/N (%)
Mungan et al (18) 1995 Turkey RCT, N = 50	G1: 3/25 (12%); G2: 4/25 (16%)	G1: 18 vs. 7; G2: 20 vs. 5	G1: silver nitrate gland ablation, n = 25; G2: Excision of gland, n = 25	Quality (2): small RCT, defined healing and statistics, unclear validity of randomization or allocation concealment	G1: 6.5 ± 1.3; G2: 11.1 ± 1.8, P < 0.001	G1: 0/25; G2: 0/25; follow-up: 2 yr
Kafali et al (16) 2004 Turkey RCT, N = 22	NR	16 vs. 6	G1: silver nitrate gland ablation, n = 10; G2: alcohol sclerotherapy, n = 12	Quality (3): small RCT randomized by cyst diameter, unclear allocation concealment, describes statistical methods	G1: 9.2 ± 2.5; G2: 4.8 ± 1.3, P < 0.001	G1: 0/10; G2: 1/12 (8%) at 7 mo NS; follow-up: 2 yr
Yuce et al (25) 1994 Turkey case series, N = 52	7/52(13%)	42 vs. 10	Silver nitrate gland ablation	Quality (4): small case series, defined healing, long follow-up, excluded bilateral cysts	10 ± 3.4 (range, 7-14)	2/52 (4%) in first 2 mo follow-up: ≥12 mo
Turan et al (24) 1995 Turkey case series, N = 25	11/25(44%)	17 vs. 8	Silver nitrate gland ablation	Quality (5): small case series with limited details and undefined healing	≤10 in 52%; ≤20 in 100%	1/25 (4%) at day 8 follow-up: 2.5 yr
Ortac et al (23) 1991 Turkey case series, N = 19	4/19(21%)	13 vs. 6	Silver nitrate gland ablation	Quality (5): small case series, 2 lost to follow-up, imprecise data, unclear method of follow-up	"An average of 10 days"	0/17 follow-up: 2 yr
Ergeneli (22) 1999 Turkey case series, N = 15	NR	NR	Silver nitrate gland ablation	Quality (5): small case series, unclear and short duration follow-up, undefined inclusion and exclusion criteria	By 4 wk (all)	0/14 follow-up: 1 yr

NR indicates not reported; RCT, randomized controlled trial; NS, not statistically significant.

*Time to healing is mean ± standard deviation or as specified or stated in the paper (quotations).

TABLE 2
CO₂ laser for treatment of Bartholin duct cysts and abscesses

Author, yr, Location Study Design, Study Size	Previously Treated for Bartholin Pathology	No. Cysts vs. No. Abscesses	Intervention	Study Characteristics	Time to Healing	Recurrences n/N (%)
Penna et al (19) 2002 Italy retrospective cohort, N = 111	NR	NR	G1: CO ₂ laser gland excision, n = 63; G2: CO ₂ laser gland vaporization, n = 48	Quality (3): moderate size cohort study, limited data	By 1 mo in all	2/111 (2%) follow-up: mean 28 mo (4–72)
Fabrini (30) 2008 Italy case series, N = 200	0 (Excluded)	200 vs. 0	CO ₂ laser gland vaporization	Quality (4): moderate size case series, lost 1.5% to 12 follow- up, many exclusion criteria	By 3 mo in all	9/200 (5%) at median 12 mo (4–24) follow-up: median 42 mo (6–96)
Heinonen (28) 1990 Finland case series, N = 64	36/64 (56.3%)	15 vs. 49	CO ₂ laser gland vaporization	Quality (4): small size case series, unclear follow-up in all patients	NR	13/64 (20%) at mean 6.5 mo (0.5–22) follow-up: mean 18 mo (5–48)
Lashgari et al (29) 1989 US case series, N = 28	NR	28 vs. 0	CO ₂ laser gland vaporization	Quality (5): small case series, 7 lost to follow-up	By 4 wk in all	2/21 (10%) follow-up: 9 yr
de Gois Speck et al (27) 2007 Brazil case series, N = 22	NR	22 vs. 0	CO ₂ laser gland vaporization	Quality (5): small case series, undefined complete healing, unclear follow-up	By 3–4 wk in all	2/22 (9%) follow-up: NR
Benedetti Panici et al (26) 2007 Italy case series, N = 19	0 (Excluded)	10 vs. 9	CO ₂ laser fenestration	Quality (4): small case series, same surgeon for all	By 8 wk in all	2/19 (11%) at 13, 16 mo follow-up: median 32 mo (2–58)
Davis (17) 1985 US case series, N = 14	6/14 (43%)	14 vs. 0	CO ₂ laser gland vaporization	Quality (4): small case series, unclear follow-up, well- described outcomes	Mean 2.2 wk	2/14 (14%) follow-up: NR

TABLE 3
Marsupialization for treatment of Bartholin duct cysts and abscesses

Author, yr, Location, Study Design, Study Size	Previously Treated for Bartholin Pathology	No. Cysts vs. No. Abscesses	Intervention	Study Characteristics	Time to Healing (d)*	Recurrences n/N (%)
Andersen et al (31) 1992 Denmark RCT, N = 32	G1: 3/14 (21%); G2: 5/18 (28%)	G1: 4 vs. 10; G2: 5 vs. 13	G1: marsupialization, n = 14; G2: incision and drainage, then primary suture closure, n = 18	Quality (2): small RCT, defined healing, described statistics, post-randomization exclusion for incorrect diagnosis in 4 patients, 7 lost to follow-up	G1: 13 (1-21) in 11/14; G2: 8 (3-11) in 14/18, P < 0.05	G1: 0/11; G2: 2/18 (11%) at 3 mo, P > 0.05; follow-up: 6 mo
Haider et al (33) 2007 England retrospective cohort, N = 58	NR	0 vs. 58	G1: fistulization, word catheter, n = 35; G2: marsupialization, n = 23	Quality (3): small retrospective cohort, questionnaires to assess outcome; 5 different surgeons; recurrence assessed by phone; 9 of marsupialization group lost to follow-up	NR	G1: 1/27 (4%) at 6 mo; G2: 0/14 follow-up: 6 mo
Cho et al (32) 1990 Korea case series, N = 47	NR	25 vs. 22	"Window operation"	Quality (4): small case series, 31 lost to follow-up at 1 yr	NR	0/27 at 6 mo 0/16 at 1 yr follow-up: 1 yr
Downs and Randall (2) 1989 US case series, N = 19	12/19 (63%)	5 vs. 14	Marsupialization	Quality (5): small cases series, short follow-up by phone; one lost to follow-up	NR	0/18 follow-up: 1-5 mo

*Time to healing presented as median (range).

TABLE 4
Needle aspiration for treatment of Bartholin duct cysts and abscesses

Author, yr, Location, Study Design, Study Size	Previously Treated for Bartholin Pathology	No. Cysts vs. No. Abscesses	Intervention	Study Characteristics	Time to Healing	Recurrences n/N (%)
Cobellis (21) 2006 Italy controlled trial, N = 18	NR	NR	G1: alcohol sclerotherapy, n = 10; G2: needle aspiration, n = 8	Quality (3): small controlled trial, unclear if randomization or concealment of allocation, no definition of healing, limited data	G1: By 1 wk (all); G2: NR	G1: 1/10 (10%) at 7 mo; G2: 3/8 (38%) at 24 mo follow-up: 24 mo
van Bogaert (36) 1999 South Africa case series, N = 36	NR	0 vs. 36	Needle aspiration	Quality (5): small case series, consecutive patients; 33% lost to follow-up; limited data	NR	0/24 follow-up: 6 mo
Poma (35) 1982 US case series, N = 35	NR	0 vs. 35	Needle aspiration	Quality (5): small case series, unclear inclusion/exclusion criteria, limited data, unclear means of follow-up	NR	0/35 follow-up: 1 yr
Cheetam (20) 1985 England Case series, N = 34	NR	13 vs. 21	Needle aspiration	Quality (5): small case series, defined success; lost 4 to follow-up	NR	Recurrence/failure to resolve: 5/30 (17%) Follow-up: mean 10 mo

TABLE 5
Fistulization for treatment of Bartholin duct cysts and abscesses

Author, yr, Location, Study Design, Study Size	Previously Treated for Bartholin Pathology	No. Cysts vs. No. Abscesses	Intervention	Study Characteristics	Time to Healing	Recurrences n/N (%)
Gennis et al (37) 2004 US RCT, N = 38	NR	0 vs. 38	G1: fistulization, Jacobi ring, n = 25; G2: fistulization, Word catheter, n = 13	Quality (2): small RCT, proper randomization and allocation concealment, recurrence determined by telephone, described statistical process	By 3 wk (all)	G1: 0/25 at 6 mo; 1/25 (4%) at 1 yr; G2: 0/13 at 6 mo; 1/13 (8%) at 1 yr NS follow-up: 1 yr
Haider et al (33) 2007 England retrospective cohort, N = 58	NR	0 vs. 58	G1: fistulization, Word catheter, n = 35; G2: marsupialization, n = 23	Quality (3): small retrospective cohort, no exclusion criteria, questionnaires to assess outcome; 5 different surgeons; recurrence assessed by phone call; 9 of marsupialization group lost to follow-up	NR	G1: 1/27 (4%) at 6 mo; G2: 0/14 at 6 mo follow-up: 6 mo
Yavetz et al (38) 1987 Israel case series, N = 46	NR	NR	Fistulization, Foley	Quality (4): small case series, defined success, anesthesia not specified, limited data	NR	8/46 (17%) at mean 9 mo (range, 5–42) follow-up: mean 46 mo (range, 6–140)

TABLE 6
Gland excision for treatment of Bartholin duct cysts and abscesses

Author, yr, Location, Study Design, Study Size	Previously Treated for Bartholin Pathology	No. Cysts vs. No. Abscesses	Intervention	Study Characteristics	Time to Healing (d)*	Recurrences n/N (%)
Mungan et al (18) 1995 Turkey RCT, N = 50	G1: 3/25 (12%); G2: 4/25 (16%)	G1: 18 vs. 7; G2: 20 vs. 5	G1: silver nitrate gland ablation, n = 25; G2: excision of gland, n = 25	Quality (2): small RCT, defined healing and statistics, unclear validity of randomization method or allocation concealment	G1: 6.5 ± 1.3; G2: 11.1 ± 1.8, P < 0.001	G1: 0/25; G2: 0/25 follow-up: 2 yr
Penna et al (19) 2002 Italy retrospective cohort, N = 111	NR	NR	G1: CO ₂ laser gland excision, n = 63; G2: CO ₂ laser gland vaporization, n = 48	Quality (3): moderate size cohort study, limited data	By 1 mo (all)	2/111 (2%) follow-up: mean 28 mo (4–72)
Rouzier et al (40) 2005 France case series, N = 32	19/32 (59%)	NR	Gland excision	Quality (4): small case series, single surgeon; series focused on cysts with anterior expansions (between urethra and fourchette)	NR	0/32 follow-up: median 36 mo

*Time to healing is presented as mean ± standard deviation or as specified.

Healing occurred in an average of 2.2 weeks. Recurrences ranged from 2% (excision or vaporization) to 20% in the 451 patients represented, with minimum follow-up of 2 months. Major bleeding occurred in 2% to 8% after laser gland ablation (28,30).

Marsupialization

Four studies reported on the marsupialization of Bartholin duct cysts and abscesses. These included 2 case series, a retrospective cohort, and a randomized controlled trial comparing marsupialization of abscesses to incision and drainage before primary closure (2,31–33). One of the case series reports on the “window operation” (32) which, by description, was similar to traditional marsupialization: excising an elliptical portion of vestibular skin and cyst wall, emptying the cyst, and preserving the new ostium by suturing the cyst wall to the skin incision edges (34). Local anesthesia or pudendal block was used in all but 1 study which employed general anesthesia (31). Antibiotics were not given routinely, and mean procedure duration was 25 minutes, including anesthesia. Patients were treated in both inpatient and outpatient settings. Cyst diameter ranged from 3 to 8 cm (2). Mean patient age was 29 to 37 years.

Median healing occurred in less than 2 weeks. With 70 patients represented and followed for at least 1 month after treatment, there were 0 reported recurrences after marsupialization in these studies. Bleeding was reported in 11% of patients in 1 study (2). When compared with patients treated by incision and drainage before primary closure, patients with marsupialization healed significantly more slowly (median: 13 [range, 1–21 days] vs. median: 8 [range, 3–11 days], $P < 0.05$) with no significant difference in recurrence (Table 3) (31).

Needle Aspiration

Four studies, including 3 case series and a controlled trial, examined the outpatient treatment of Bartholin duct cysts and abscesses by needle aspiration (20,21,35,36). Procedure duration was not reported; anesthesia consisted of local ethyl chloride spray in 2 studies, was not given in 1 study, and was not specified in the other. Antibiotics were given for abscess in 3 of 4 studies (35). Patients were aged between 16 and 45 years, with mean abscess diameter of 5 cm (35).

Healing occurred by 1 week, as reported in 1 study (21). Recurrences ranged from 0% to 38% with follow-up of 6 months or greater in the 97 patients represented.

Neisseria gonorrhoeae was the most commonly isolated bacteria from abscess aspirate, reported in 28% and 52% of patients. Compared with alcohol sclerotherapy, needle aspiration was associated with over twice the frequency of recurrence, with no statistical analysis reported (Table 4) (21).

Alcohol Sclerotherapy

In addition to the trial mentioned previously, another small trial reported alcohol sclerotherapy in 12 patients, which demonstrated a faster procedure with faster healing when compared to silver nitrate gland ablation (Table 1) (16). After evacuation, cyst cavities were irrigated with 70% alcohol for 5 minutes and then re-evacuated. Recurrence was seen in 8% and 10% of patients in the 2 studies, both at 7 months (16,21). All patients healed by 1 week. Transient hyperemia was reported in 20% and 100% of patients. The same 20% had a hematoma (21). Seventeen percent of patients in the other study experienced tissue necrosis and scar (Tables 1 and 4) (16).

Fistulization

A case series, a retrospective cohort, and a randomized controlled trial reported outcomes after fistulization of Bartholin duct cysts or abscesses (33,37,38). The technique for creating a new, epithelialized outflow tract for an obstructed Bartholin duct was by placing either a 14-French Foley catheter, a Jacobi ring, or a Word catheter. Word catheters are placed through a 5-mm stab incision on the inner labium minus (just external to the hymen) in the region of the Bartholin gland duct. The bulb of the catheter is inflated with up to 3 mL of sterile saline, and the catheter is left in place for 4 to 6 weeks (39). The Jacobi ring is a rubber catheter, fashioned into a ring from an 8-French T tube threaded over a 2-0 silk suture that enters and leaves the cyst or abscess through 2 separate incisions (37) (Table 5). The Jacobi ring was placed in the emergency department (5), and no procedure duration was reported for any study. Fistulization was performed under local anesthesia in some (5,38) or all (33) patients; antibiotic use was not reported. Mean age was 30 (range, 16–51) (33).

Recurrent Bartholin gland pathology was noted in 4% to 17% of patients after fistulization, with follow-up of at least 6 months in 111 patients represented. Premature loss of the Word catheter was the most commonly reported adverse event. In a randomized trial comparing the Word catheter to the Jacobi

ring for symptomatic Bartholin duct abscesses, healing was accomplished by 3 weeks and patients were highly satisfied in both groups. A single patient in each group had a recurrence at 1 year (Table 5) (5).

Gland Excision

Excision of Bartholin duct cysts and abscesses was evaluated in 3 studies: a randomized controlled trial comparing inpatient treatment by excision to silver nitrate (18), a retrospective cohort comparing outpatient laser gland excision to gland vaporization (19), and a case series describing excision of Bartholin duct cysts with “anterior expansion” (between the urethra and fourchette) (Table 6) (40). Reported mean procedure duration was 20 and 60 minutes, including bilateral excisions. Patients were a mean 28 years old (18). Cysts were between 2 and 7 cm. Anesthesia varied, and antibiotics were reported in 1 study, given only for abscess (18). With at least 2 years follow-up and 168 patients represented, recurrence ranged from 0% to 3%, at the most. Healing was accomplished in 11.1 ± 1.8 days. Bleeding or hematoma was reported in 2% to 8%, fever in 24%, and persistent dyspareunia in 8% and 16% (Table 6).

CONCLUSION

All of the available treatments for Bartholin duct cysts and abscesses have been performed, at least by some authors, as outpatient procedures under local anesthesia, usually in 20 minutes or less. Patients heal in 2 weeks or less, and reported adverse events are generally uncommon and non-life-threatening, regardless of the treatment. Recurrences are reported in 20% or less of patients, with few exceptions. The highest frequency of recurrence in this review was after treatment by aspiration only. There was no recurrence after marsupialization but in comparatively few patients over short follow-up. With longer procedure times, treatment by excision was associated with infrequent recurrence over extended follow-up. Treatment with silver nitrate, reported only in Turkey, had uncommon recurrence and was fast and amenable to local anesthesia, with serious complications (vulvar mucosal cauterization) reported in only 1 study.

This review has both strengths and weaknesses. A strength lies in its transparent search strategy, rigorous efforts to include all relevant published and unpublished studies, strict inclusion and exclusion criteria (41), and adherence to MOOSE guidelines (4). A weakness relates to the limited quality and size of the available reports, most of which were case series with small

numbers of patients. We identified only 5 trials, and comparative studies were small and too heterogeneous for meta-analysis. Limiting our search to English-language eliminated 12 articles. In general, limiting studies to those published in English has not been noted to dramatically change the summarized treatment effect estimate (42–44). We limited our search to the past 25 years (extended to 26 years when updated before submission). Before 1982, neither electronic abstracts nor full-text articles are commonly available, dramatically increasing the complexity and expense, and decreasing the feasibility of completing this review. Given the range of treatments for Bartholin pathology still practiced today, we argue that we are unlikely to have missed definitive studies or to have compromised our conclusion by excluding earlier years.

An ideal treatment for symptomatic Bartholin duct cysts and abscesses is fast and safe, performed as an outpatient under local anesthesia, with uncommon recurrence and rapid healing. Existing literature to guide treatment choice is lacking, and the optimal treatment for Bartholin duct cysts and abscesses is still unclear. In light of the current literature, and without clearly demonstrated superiority, each of the described treatments could be an appropriate option, depending on patient characteristics and provider resources and experience. Large, randomized controlled trials comparing common therapeutic strategies are needed to establish the best available therapy for this painful condition.

*Note: At the time of final proof review in April of 2009, the authors repeated a search of the listed databases and identified a single additional study that would have qualified for inclusion in this systematic review. This randomized controlled trial of 212 participants (159 completed the study) compared marsupialization to silver nitrate application for treatment of Bartholin duct cysts and abscesses. Excluding postmenopausal women and those with recurrent or bilateral gland pathology, this study reported 24.1% and 26% recurrences at six months with no significant difference between groups in recurrence or treatment duration. All patients received antibiotics, and time to healing was not reported. 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;16:149–152.*

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