Arch Gynecol Obstet (2011) 283:831–835
DOI 10.1007/s00404-010-1463-8

GENERAL GYNECOLOGY

Increased complication rates in vaginal hysterectomy in genital tuberculosis

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Received: 20 December 2009 / Accepted: 6 April 2010 / Published online: 21 April 2010

Abstract
Purpose To evaluate the complication rate in women with genital tuberculosis undergoing vaginal hysterectomy.
Methods A retrospective study of seven women who underwent vaginal hysterectomy and anterior and posterior colpoperineorraphy for uterovaginal prolapse and found to have genital tuberculosis and 63 women who underwent vaginal hysterectomy during the same period without genital TB.
Results The mean age was 52.7 in the study group as compared to 47.4 years in the control group. Indications for surgery were genital prolapse in 7 (100%) women in group I, 43 (68.25%) in group II, AUB in 0 and 6 (9.5%), CIN III in 0 and 5 (7.9%), fibroid up to 10 weeks in 0 and 9 (14.31%) in group I and II, respectively. Surgery performed in group I was vaginal hysterectomy and pelvic floor repair in 7 (100%) and 43 (68.25%) in group II, while it was non-descent vaginal hysterectomy in 0 and 20 (31.7%) cases respectively. There was very high rate of complications in vaginal hysterectomy done in genital tuberculosis as compared to controls like excessive bleeding in 2 (28.56%) versus 3 (4.76%); need for relaparotomy in 1 (14.28%) case versus 0 in control; postoperative peritonitis and flare-up in 4 (57.14%) cases versus 0 in groups I and II respectively.
Conclusion Vaginal hysterectomy is associated with higher complication rate in women with genital tuberculosis.

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Keywords Genital tuberculosis · Vaginal hysterectomy · Complications · Peritonitis · Laparotomy

Introduction

Tuberculosis (TB) is one of the most serious infectious causes of global morbidity and mortality and is responsible for 9.2 million new cases of TB and more than 2 million deaths annually throughout the world with developing countries being mainly affected where over 95% of new cases and deaths occur [1]. Female genital tuberculosis mainly caused by hematogenous spread from pulmonary or extrapulmonary TB is an important cause of significant morbidity and long-term sequelae like infertility, abdominal and pelvic adhesions including Fitz–Hugh–Curtis syndrome, Asherman's syndrome and tubo-ovarian masses and may masquerade as ovarian cancer [2–7]. Genital TB is a chronic disease and often has low-grade symptomatology with few specific complaints. Most cases of genital TB have normal clinical examination (approx. 43%) but others may present with adnexal mass (23%), irregular uterus (1.41%) in which only 1.4% women may have uterine prolapse or cervical polyp-like lesion or rarely may coexist with gynecological cancer and may rarely cause vesicovaginal and rectovaginal fistula [8–10].

Preoperative diagnosis of genital TB is not usually made in women routinely undergoing gynecological surgeries like vaginal hysterectomy and pelvic floor repair for genital prolapse especially, as we do not routinely perform endometrial sampling in them in absence of menstrual dysfunction which may be responsible for missing the diagnosis of coexisting genital TB. However, surgery in women with genital TB may flare-up the disease, may be more difficult due to nonavailability of surgical planes and may cause

more complications as has been our experience in performing laparotomy and laparoscopy amongst women with genital TB [11–13].

We present a study of seven women who underwent vaginal hysterectomy for genital prolapse but turned out to be endometrial tuberculosis on histopathological examination. The results of difficulties encountered during surgeries and preoperative and postoperative complications amongst them were compared with 63 controls during the same time.

Materials and methods

A total of seven women who underwent vaginal hysterectomy, anterior colporrhaphy and posterior colpoperineorraphy for genital prolapse over last 5 years and were found to have genital tuberculosis on histopathology later were taken in this retrospective study to see their peroperative and postoperative complications. A total of 63 women without female TB undergoing vaginal hysterectomy or nondescent vaginal hysterectomy (NDVH) at the same time were taken as controls. To avoid bias, difficult NDVH cases for large fibroid or malignancy were not taken as controls.

The detailed history including past and family history of pulmonary and extrapulmonary tuberculosis and antituberculous therapy were taken in all cases. A detailed examination including abdominal, speculum, and vaginal examination was done in all the cases. As per protocol of the hospital, Papanicolaou (pap) smear was taken in all the cases but endometrial sampling was not done unless the patient was having menstrual irregularities or postmenopausal bleeding. Routine investigations for preanesthetic checkup like complete hemogram, blood sugar, liver and kidney function tests, chest X-ray, electrocardiogram (ECG) were performed in all cases. The operative procedure, the difficulties encountered and the peroperative and postoperative complications observed in the two groups were noted.

All women found to have genital tuberculosis on histopathology were started on antituberculous therapy (ATT) as per the World Health Organization (WHO) and Revised National Tuberculous Control Programmme (RNTCP) guidelines using isoniazid, rifampicin, pyrazinamide, ethambutol for 2 months followed by isoniazid and rifampicin for 4 months under directly observed treatment short course (DOTS) strategy [1, 15]. All women on antituberculous therapy were followed up for compliance and for any complications of drugs. The data was compiled and analyzed. The Statistical Package for Social Sciences (SPSS) 13.0 was used for statistical analysis. The Student *t* test was used to calculate means and standard deviations for quantitative variables. The chi-square test, Student *t* test and Fisher exact test were used to compare the complications in the two groups for all the complications and p value of <0.05 was taken as significant. This study was part of our studies on female genital tuberculosis for which ethical clearance was taken from the institutional ethical committee.

Results

The characteristics of women in the two groups are shown in Table 1. The mean age was 52.76 years (range 40–61 years) in group I as compared to 47.44 years (range 32–85) in control group [p value 0.53, not significant (NS)]. Parity ranged from 0 to 8 with mean being 3.1 in study group as compared to 1–7 with mean being 3.2 in control group ($p = 0.0212$, NS). Most women (57 vs. 65%, $p = 0.250$ nonsignificant) were from poor socioeconomic status ($p = 0.220$, NS) as per Kuppuswamy's classification [14]. The body mass index (BMI) was <25 in 2 (28.5%) women in study group as compared to 22 (34.9%) in group 2 ($p = 0.10$ NS,) while it was between 25 and 30 in 5 (71.5%) versus 39 (61.9%) ($p = 0.15$ NS), respectively, in the two groups.

The indications for performing the surgery and the surgical procedure performed are shown in Table 2. The indications for surgery were uterovaginal prolapse in seven women (100%) in group I, as compared to 43 (68.25%) in group II ($p = 0.125$ NS), abnormal uterine bleeding (AUB) in 0 and 6 (9.52%), cervical intra-epithelial neoplasia (CIN) III in 0 and 5 (7.9%) and fibroid up to 10 weeks in 0 and 9 (14.28%) cases in group I and II, respectively. Vaginal hysterectomy with anterior and posterior colpoperineorraphy was performed in all 7 (100%) cases as compared to 43 (68.25%) in controls ($p = 0.08$ NS), while nondescent vaginal hysterectomy (NDVH) was performed in 0 and 20 (31.75%), respectively, in the two groups ($p = 0.04$, significant).

The complications observed are shown in Table 3. There was excessive bleeding at the time of surgery in 2 (28.57%) cases as compared to 3 (4.76%) cases, need for laparotomy in 1 (14.28%) versus 0, peritonitis and flare-up of tuberculosis in 4 (57.14%) versus 0, paralytic ileus in 1 (14.28%) versus 2 (3.32%) and urinary retention in 0 versus 1 (1.12%) cases, respectively, in study and control group. Thus 6 (85.71%) women in study group as compared to 6 (9.52%) women in control group ($p = 0.001$, significant) had complications with some women having more than one complication. One patient had excessive bleeding at the time of vaginal hysterectomy but hemostasis was achieved by doubly clamping all the pedicles. However, she required an unexpected laparotomy for hemoperitoneum within 24 h. Her hysterectomy specimen showed tuberculous granuloma on histopathology possibly explaining her cause of excessive bleeding and need for laparotomy.

Table 1 Characteristics of women undergoing vaginal hysterectomy in the two group ($N = 70$)

Characteristics	Study group $N = 7$ (10%)	Control group $N = 63$ (90%)	p value	Significance
Age				
Range	40–61	32–85		
Mean age (years) ± standard deviation	52.76 ± 8.59	47.44 ± 9.98	0.53	NS
Parity				
Range	0–8	1–7		
Mean	3.1	3.2	0.212	NS
Standard deviations	0.88	0.82		
Socioeconomic status				
Poor	4 (57.1%)	41 (65.0%)	0.250	NS
Moderate	3 (43.9%)	22 (34.9%)	0.220	NS
Body mass index (BMI)				
<25	2 (28.5%)	22 (34.9%)	0.10	NS
25–30	5 (71.5%)	39 (61.9%)	0.15	NS
>30	0 (0%)	2 (3.2%)	0.09	NS

NS not significant

Table 2 Indications for surgery and surgical procedure performed

Indications	Study ($N = 7$)	Control ($n = 63$)	p value	Significance
Uterovaginal prolapse	7 (100%)	43 (68.25%)	0.125	NS
AUB		6 (9.52%)		
CIN III		5 (7.93%)		
Fibroid		9 (14.28%)		
Surgical procedure performed				
Vaginal hysterectomy with pelvic floor repair	7 (100%)	43 (68.25%)	0.08	NS
Nondescent vaginal hysterectomy (NDVH)		20 (31.75%)	0.04	S

Values in parenthesis are in percentage

AUB abnormal uterine bleeding, *CIN* cervical intra-epithelial neoplasia, *NS* not significant, *S* significant

Table 3 Complications of vaginal hysterectomy in the two groups

	Study group ($n = 7$)	Control group ($n = 63$)	p value	Significance
Excessive bleeding requiring transfusion	2 (28.57%)	3 (4.76%)	0.025	S
Flare-up of tuberculosis and peritonitis	4 (57.14%)	0	0.001	HS
Paralytic ileus	1 (14.28%)	2 (3.32%)	0.05	S
Urinary retention	0	1 (1.12%)	1.00	NS
Need for laparotomy	1 (14.28%)	0	0.02	S
Total complications	6 (85.71%)	6 (9.52%)	0.001	HS

Note some patients had more then one complications

NS not significant, *S* significant, *HS* highly significant

Discussion

Female genital tuberculosis is a common disease in developing countries causing menstrual dysfunction, infertility, tubo-ovarian masses, and chronic pelvic pain and may be associated with conditions like rectovaginal fistula, malignancies and prolapse [1–11].

In the present retrospective study, we observed complications rate in seven women who underwent vaginal hysterectomy for prolapse and were later diagnosed to have endometrial tuberculosis on histopathology and compared them with controls. There were significantly higher rates of complications, with six out of seven cases (85.71%) having one or the other complications like excessive bleeding, peritonitis and flare-up of disease which was significantly much more than controls. Excessive bleeding at the time of surgery is common and is often difficult to achieve hemostasis as exemplified in one case that needed unexpected laparotomy for hemoperitoneum with 24 h after surgery.

Surgery is often difficult and hazardous in women with genital tuberculosis due to non availability of surgical planes and inaccessibility of pelvic organs due to dense adhesions especially in abdominopelvic tuberculosis [7, 11–13].

We observed increased complications with in the form of inability to see pelvis (10.3 vs. 1.3%), excessive bleeding requiring blood transfusion (2.3 vs. 0%) peritonitis (8 vs. 1.8%), inability to create pneumoperitoneum, bladder injury, trocar site discharge and need for laparotomy in laparoscopic surgery in women in the genital TB than controls in our previous study [12].

We also observed higher complication rate in the form of excessive bleeding, peritonitis and flare-up of TB, bowel injury and inability to visualize in our study on laparotomy performed for abdominopelvic tuberculosis than controls [13]. Singh et al. [16] observed flare-up of tuberculosis in postoperative period following laparoscopic hysterectomy in their study.

Diagnosis of genital tuberculosis is often difficult due to its paucibacillary nature and requires endometrial sampling for acid fast bacilli (AFB) culture, histopathology to see tuberculous granuloma and polymerase chain reaction (PCR) [11]. Laparoscopy and hysteroscopy are useful modalities to diagnose genital tuberculosis [17, 18]. Schaefer [3] and Sutherland [2, 19] had recommended surgical treatment in the form of abdominal hysterectomy with bilateral salpingoophorectomy for persistent and recurrent tuberculosis or pelvic masses following medical treatment, persistent symptoms after treatment, recurrent pyometra, TB pyosalpinx, ovarian masses, nonhealing fistula and multidrug-resistant (MDR) disease. However, these recommendations were given in pre-rifampicin era when lengthy and less effective treatment regimens with poor compliance were used. With modern chemotherapy the need for surgery is very rare as even fistulas heal with chemotherapy [10]. The American Thoracic Society [20] only recommends surgery for drainage of residual large tubo-ovarian abscesses. Hence, only limited surgery such as drainage of pelvic or tubo-ovarian abscesses and pyosalpinx should be performed followed by antituberculous therapy for better results [11].

Our study highlights the significance of preoperative diagnosis of genital tuberculosis in women having genital prolapse without any symptoms or signs of genital tuberculosis to be better prepared for higher complications at the time of surgery. As none of the patients in our study had any pelvic mass or menstrual dysfunction or postmenopausal bleeding, routine ultrasound, computerized tomography (CT) scan or endometrial biopsy was not considered necessary and was not performed as it is our policy not to do endometrial biopsy in genital prolapse cases unless the woman has menstrual dysfunction or postmenopausal bleeding. It is recommended that possibility of coexisting genital tuberculosis (TB) should be considered in women undergoing vaginal surgery by taking endometrial sample for tuberculosis granuloma, AFB culture and for polymerase chain reaction and by performing X-ray chest especially in women with some suggestive symptoms and signs like menstrual dysfunctions and in women with past history of pulmonary or extra pulmonary TB.

Conflict of interest statement None.

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