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A Comparative Study of Transvaginal Sonography versus Laparoscopy Evaluation in Chronic Pelvic Pain: Original Study

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Abstract: Introduction: Chronic pelvic pain (CPP) is intermittent or constant pain in the lower abdomen or pelvis for at least six months duration, not occurring exclusively with menstruation or intercourse and not associated with pregnancy. This chronic pelvic pain (CPP) is poorly understood, and may have significant impact on a woman's health. Transvaginal sonography (TVS) and laparoscopy are useful in the evaluation of women with CPP. This research was designed to study role of TVS and diagnostic laparoscopy in chronic pelvic pain. Materials and Methods: This prospective study was done at Lalla Ded Hospital from August 2011 to July 2014. All female patients who had clinical diagnosis of CPP were evaluated with the TVS and laparoscopy and findings were recorded. Results: Total of 80 women had CPP. Normal TVS was present in 41 cases (51.25%). The remaining 39 (48.75%) had an abnormal scan. Laparoscopic confirmation of pelvic pathology was reported in 40 cases with abnormal scan but normal scan was confirmed only in 10 (12.50%) cases. Conclusion: In spite of similar specificity and positive predictive value, laparoscopy although being an invasive procedure still has got distinct advantages over TVS in terms of sensitivity and negative predictive value indicating its superiority in management.

Keywords: Chronic, Pelvic, Pain, TVS, Laparoscopy

1. Introduction

Chronic pelvic pain (CPP) is defined as pain of at least 6 months duration that occurs in the lower abdomen or below the umbilicus and has resulted in functional or psychological disability or required intervention and treatment [1]. The causes are often obscure and patients of the CPP have significant disruption of their quality of life and nature varies from constant to recurring [2]. Chronic pelvic pain is one of the most frustrating and controversial areas of gynecological practice [3]. The pelvic examinations are normal except a vague tenderness and commonly a physician diagnoses pelvic inflammatory disease. As a result, the women are given repeated course of antibiotics and often labeled as neuro-psychotics [4]. Careful history taking, meticulous examination and relevant investigation are three cornerstones for evaluating a patient with CPP [5].Laparoscopy is an effective tool in the evaluation of women with CPP [6]. The aim of this research is studying role of TVS and diagnostic laparoscopy in chronic pelvic pain.

2. Materials and Methods

This prospective study was done at Lalla Ded Hospital from August 2011 to July 2014. The study was approved by ethical committee of hospital. Written consent was taken after explaining procedures to patients. All patients who had diagnosis of CPP were subjected to detailed history and clinical examination. Women with known chronic medical or gynecologic diseases or any pelvic surgeries that were associated with lower abdominal pain were excluded from this study. All cases that had not gynecological cause were excluded by abdominal ultrasonography. While recording the history, particular enquiry was made regarding associated symptoms like dysmenorrhea, abnormal vaginal bleeding, vaginal discharge, dyspareunia, infertility, enteric symptoms, urological and musculoskeletal symptoms. Routine

investigations were done in all. All women were subjected to high frequency TVS evaluation by experienced sonographer. TVS was done in postmenstrual phase. A standard technique of diagnostic laparoscopy was done by 10 mm port at infra-umbilical area for 30-degree telescope and another one by two 5mmipsilateral working ports. The interval between TVS examination and laparoscopy ranged from 0 day to 15 days. The findings of TVS and diagnostic laparoscopy in each patient were recorded.

The data was analyzed by using Statistical Package for Social Science (SPSS) version 16 (SPSS Inc., USA). Qualitative data, quantitative data, frequency, mean, standard deviation (SD), and percent distribution were calculated. Chi square test was used for comparison between groups. For interpretation of results, p value < 0.05 was considered significant.

3. Results

Total of 80 women had CPP after excluding all non-gynecological causes. All had transvaginal sonography and laparoscopic evaluation. Age ranged from 17-50 years with nullipara showing maximum number of 48(60%) cases. (Table 1& 2) Associated symptoms like dysmenorrhea, menstrual irregularities, dyspareunia and infertility were also presented in 80% of cases. Normal pelvic examination was reported in 70 (87.50%) patients except for mild tenderness which was considered normal. 5 patients had bulky uterus and had restricted mobility and tenderness in per vaginal examination. Adhesions were detected in 9 cases (11.25%) and pelvic congestion in 6 cases (7.5%) by laparoscopy only.

Table 1. *Age incidence.*

AGE(YEARS)	No. OF PATIENTS	%
17-20	18	22.50
21-30	42	52.50
31-40	14	17.50
41-50	6	7.50

Table 2. *Parity wise distribution.*

Parity	Number	%
Po	48	60
P1	20	25
P2	8	10
P3& above(all were ligated)	4	5

Table 3. *Comparison of findings by TVS & laparoscopy.*

FINDINGS	TVS	LAPROSCOPY
Normal	41(51.25%)	10(12.50%)
Ovarian cyst	10(12.50%)	12(15%)
TO mass	6(7.5%)	7(8.75%)
Chronic PID	9(11.25%)	15(18.75%)
Endometriosis	8(10%)	13(16.25%)
Tubercular lesion	Nil	2(2.5%)
Pelvic congestion	Nil	6(7.5%)
Fibroid uterus	3(3.75%)	2(2.5%)
Adhesions	Nil	9(11.25%)
Bulky uterus with adenomyosis	3(3.75%)	4(5%)

TVS: Trans-vaginal sonography, TO: Tubo-ovarian, PID: Pelvic inflammatory disease

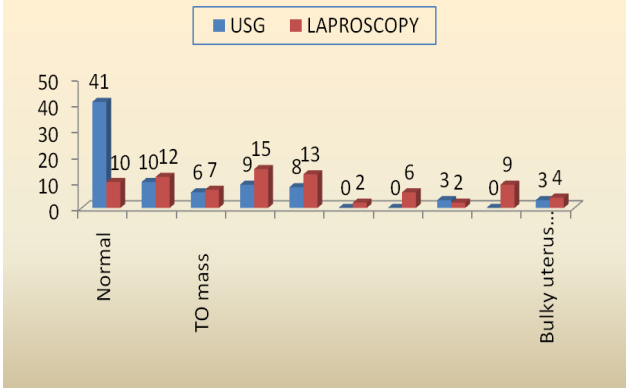

Figure 1. *Graphic representation of Comparison of findings by TVS (USG) & laparoscopy.*

Normal TVS was reported in 41 (51.25%) cases. The remaining 39(48.75%) cases had abnormal scan. Laparoscopic confirmation of pelvic pathology was reported in 40 cases with abnormal scan but normal scan was confirmed only in 10 (12.50%) cases. 30 cases with normal scan had abnormal laparoscopy findings which were statistically significant, the majority had adhesions, salpingitis, endometriosis and tubercular lesions (Table 3).

Sensitivity and specificity for TVS were 58.57% and 100% respectively, while for laparoscopy it was 98.57% sensitivity and 100% specificity. Positive predictive value was 100% by both means but negative predictive value was significantly higher by laparoscopy rather than TVS; 90% compared to 24.34 %.

4. Discussion

Chronic pelvic pain is a common and debilitating condition; its etiology is multifactorial, involving social, psychological and biological factors [1]. Chronic pelvic pain (CPP) is one of the commonest symptomatology in gynecological outpatient clinics. It accounts for 10% of office visits to gynecologists and general clinics and prevalence of 3.8% [4, 7]. In the present study the maximum number of women with CPP belonged to age group of 21-40years old. This is similar to findings of Goswami et al., Kamilya et al., and Veena et al. [8, 9, and 10]. Clinical examination did not detect any abnormalities in 70 (87.50%) patients.

TVS was normal in 41 (51.25%) women whereas on laparoscopy no detectable pathology was detected in 10 (12.5%) women. Laparoscopy is more sensitive in detecting chronic pelvic pain especially mild endometriosis, pelvic inflammatory diseases (PID) and adhesions. Laparoscopy is an excellent tool in evaluation of patients with pelvic pain, because diagnosis and often treatment can be accomplished in one sitting, without subjecting the patients to exploratory laparotomy [6]. Negative laparoscopic findings were reported in literatures vary from 5%-90% [9, 10, 11].

In our study adhesions were detected in 11.25% of patients which were due to pelvic inflammatory diseases, post-operative or endometriosis in origin. Adhesions were most frequent findings in studies of Goswamiet al. (34.1%), Mara

et al. (22.3%), Krech et al. (38%) and Newham (40%) [8 and 12-14].

PID demonstrated by presence of salpingitis, tuboovarian mass, hydrosalpinx fluid, pus in pouch of Douglas (POD) or obliteration of POD was detected in 18.75% patients in comparison to 30.3% by Goswami et al. and 17.7% by Mara et al. [8, 12]. Endometriosis was more commonly found in 16.25% in our study compared to 5% as reported by Veena Agarwal and 13.9% by Goswami, Sebantiet al. [8, 10]. Pelvic congestion was seen in 75% cases. Howard reported that more than 40% of laparoscopies are performed for diagnosis of CPP [15]. About 75% of patients of CPP with normal TVS findings had at least one detectable diagnosis by laparoscopy.

But because of invasive nature and cost, decision to perform a laparoscopy should be reserved and taken after a proper history, physical examination, findings of non-invasive test, after exclusion of non-gynecological causes of pelvic pain and after failure of conservative treatment. Also because few women who underwent laparoscopy for reasons other than investigation of pain, had comparable findings that were not associated with pain symptoms.

5. Conclusion

Laparoscopy may be considered as a gold standard in the evaluation of CPP. Laparoscopy although being an invasive procedure, still has got distinct advantages over TVS in terms of sensitivity and negative predictive value indicating its superiority in management.

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