



Accuracy of Transvaginal Ultrasonography for Diagnosis of Endometriosis Taking Laparoscopy as Gold Standard

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Background

Endometriosis is a common gynaecological disease with a diverse clinical presentation. Laparoscopy has long been considered the gold standard diagnostic modality for endometriosis but with the evolution of non-invasive, high resolution transvaginal ultrasonography, it is frequently used as the first line diagnostic technique in making a preoperative diagnosis for endometriosis. This study was designed to determine the diagnostic accuracy of transvaginal ultrasonography (TVS) in diagnosis of endometriosis taking laparoscopy as gold standard.

Method

A total of 118 women of child bearing age who presented with symptoms of pelvic endometriosis in the department of gynecology, Bakhtawar Amin Hospital Multan were included. The study duration was from June 01, 2018 to May 31, 2020. Patients were first investigated on TVS examination to diagnose endometriosis. Afterwards, diagnostic laparoscopy was performed in all patients to confirm the diagnosis of endometriosis. Accuracy of TVS was determined in terms of sensitivity, specificity, positive predictive value (PPV) and negative predictive value (NPV).

Results

Mean age of the patients was 31.7 ± 7.4 years. Most common presenting complaint was dysmenorrhea in 89 (75.4%) patients followed by dyspareunia in 36 (30.5%), chronic pelvic pain in 30 (25.4%) patients and subfertility in 18 (15.3%) patients. On TVS, endometriosis was diagnosed in 69 (58.5%) patients. While on diagnostic laparoscopy, endometriosis was diagnosed in 75 (63.6%) patients. The sensitivity of TVS in diagnosis of endometriosis was calculated as 82.7%, specificity as 83.7%, PPV as 89.9% and NPV as 73.5%.

Discussion

Endometriosis is a common gynecological disorder of child bearing age. Early diagnosis is always challenging, if diagnosed non-invasively it can reduce the need for unnecessary diagnostic laparoscopies.¹¹ Studies have reported association of endometriosis with infertility, the association is weak in cases having mild endometriosis.¹² So early diagnosis of endometriosis in infertile couples can help to decide early treatment options in these patients and can bypass the need of differential diagnosis.¹³ In the present study, 19.5% cases of endometriosis presented with infertility. So accurate diagnosis is very important in patients having symptoms suggestive of endometriosis. Physical examination is of less importance and there is always a need to look for imaging modalities for confirmatory diagnosis.¹⁴ In present study, TVS was used for diagnosis of endometriosis and evaluated its accuracy against diagnostic laparoscopy. We found 82.7% sensitivity and 83.7% specificity of TVS against laparoscopy. A study conducted by Said TH & Azam AZ¹⁵ on accuracy of TVS in diagnosing endometriosis reported that TVS as 97.3% sensitive and 98.5% specific. The authors diagnosed endometriosis in 54.4% patients.¹⁵ Another study by Menakaya et al.¹⁶ reported that TVS is 72.2% to 86.8% sensitive and 96.9% to 98.3% specific for diagnosis of endometriosis depending upon the location of the lesions. Another study by Bazot et al.¹⁷ containing 83 women having surgically proven endometriosis, the authors reported that TVS is 78.5% sensitive and 95.2% specific in the diagnosis of endometriosis. Moreover, a systematic review on accuracy of TVS reported that TVS has a sensitivity of 91.0% and specificity of 98%.¹⁸ Another systematic review compared the accuracy of MRI with TVS for diagnosis of rectosigmoid endometriosis and reported that both of these techniques are equally effective for diagnosing endometriosis.¹⁹ Although laparoscopy is the gold standard for the diagnosis of endometriosis, however, efficacy of laparoscopy is reduced in patients with mild or minimal disease. It is also difficult to diagnose lesions which are atypical in appearance.

Table 1: Baseline characteristics of enrolled patients (n = 118).

Symptom	Frequency
Dysmenorrhea	89 (75.4%)
Dyspareunia	36 (30.5%)
Chronic pelvic pain	30 (25.4 %)
Subfertility	23 (19.5%)
Dyschezia	18 (15.3%)
Dysuria	4 (3.4 %)

Table 2: Accuracy of TVS in diagnosis of endometriosis.

		Endometriosis on Laparoscopy		Total
		Yes	No	
Endometriosis on TVS	Yes	62	07	69
	No	13	36	49
Total		75	43	118

Sensitivity: 82.7%
Specificity: 83.7%
Positive Predictive value (PPV): 89.9%
Negative Predictive value (NPV): 73.5%