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"A Clinical Study on Chronic Pelvic Pain in Gynecology"

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Abstract **Original Research Article**

Introduction: Pelvic pain is a poorly understood phenomenon. Acute pain is a protective mechanism that alerts the central nervous system to impending peripheral Injury. Previously pain was believed to be a simple, signal from peripheral pain neurons to the brain (the 'somatic theory'). Eventually, it became clear that pain is much more complex. ***Objective:*** To assess the clinical study on chronic pelvic pain in gynecology. ***Methodology:*** The descriptive cross sectional study was conducted in the Department of Obstetrics & Gynaecology, Tairunnessa Memorial Medical College and Hospital, Gazipur, Bangladesh over a period of 6 months between August 2015 to January 2016. A total of 50 cases within the study period were consecutively included in the study. Female patients with chronic pelvic pain admitted at IPD (in patient department) of the above mentioned hospital during the study period. ***Results:*** A total number of 50 cases were studied. Two-third (62%) of the patients were 35 or > 35 years and 38% below 35 years old. Majority (90%) of the patients was married and housewife (88%). About 32% were illiterate, 44% primary level educated. Seventy percent of patients belonged to low socioeconomic class. Majority (98%) of the patients complained of lower abdominal pain and 2% backache. Nearly 60% of the patients had pain for >1.5 years or more. Very few (8%) patients complained of severe pain. Dysmenorrhoea was the predominant complaint (90%) menorrhagia (76%), dysparunia (48%) and polymenorrhagia (12%). Forty two percent cases were clinically diagnosed as PID and endometriosis with chocolate cyst were 38%. About 60% of deliveries were conducted by UTBA (Untrained birth attendant), 40% terminated pregnancy by MR, and 8% had history of spontaneous abortion. Laboratory investigations showed leucocytosis in 14% cases and raised ESR in 4% cases. Of the 50 cases, 18 were tested for endocervical swab. Of them 4(22.2%) were found positive, while out of 28 Paps Smear Test, 46.4% was revealed to be positive (inflammatory cell). Over 40% of the cases were clinically diagnosed as PID and 40% endometriosis with chocolate cyst. Very few had adenomyosis and fibroid uterus (4%). ***Conclusion:*** Systematic evaluation of pelvic pain starting from history taking through clinical examination to investigations helps diagnosing most of the cases. Some cases need laparoscopy and laparotomy to reach to conclusive a diagnosis. However, some cases even after adopting all the systematic procedures cannot be diagnosed. Many of these cases, however, cured with psychological therapy.

Keywords: Pelvic Pain, Pelvic Sonography, Chronic Pelvic Pain, Pattern.

INTRODUCTION

Pelvic pain is a poorly understood phenomenon. Acute pain is a protective mechanism that alerts the central nervous system to impending peripheral Injury. Previously pain was believed to be a simple, signal from peripheral pain neurons to the brain (the 'somatic theory'). Eventually, it became clear that pain is much more complex. The 'gate theory' proposes that peripheral nociceptive signals can be modulated by neurotransmitters that can be linked with mood states [1]. These neurotransmitters include serotonin and on dorphins. Pelvic pain, in its many forms, is the presenting chief complaint in about one of gynecologic outpatients, making the diagnosis and treatment of the positive factors central to effective gynecological practice.' Pain is defined inn unpleasant sensory and emotional experience associated with actual or potential

tissue damage or described in terms of such damage. Chronic pelvic pain, a common complaint in female adolescents, is defined as cyclic or non-cyclic, intermittent or constant discomfort in the pelvic region for at lest 6 months. It often frustrates the patient, her parents and her physician and it can lead to major functional problems such as changes in family dynamics or school absenteeism [2]. Female pelvic pain is typically caused by a medical condition involving the reproductive organs, muscles of the abdominal wall, urinary tract or lower gastrointestinal tract. It can be a difficult-to-solve medical mystery. Some causes are always short-term (acute) and others can be long lasting (chronic) unless successfully treated. Experts have yet to understand all possible causes of pelvic pain, particularly when it has become chronic. For this reason, some women have chronic female pelvic pain with no known cause, en after a lot of tests. This does not mean, however, that there is neither why because behind the pain nor that there is no possible treatment [3]. The attempt to describe chronic pain as “either” physical “or” psychological, or the attempt to "rule out" physical causes of pain before investigating psychological aspects of the afflicted woman, is simplistic and unproductive. The evaluation of patients with chronic pelvic pain should include Investigations of chronic organic gynecologic conditions that may contribute to a pain problem. For the purpose of this brief review, the classification offered by Renaer and Guzinski of "episodic" and "continuous” chronic pain is useful [4]. When seeing women with chronic pelvic pain, clinicians often recognize that such patients may be clearly anxious, depressed and emotionally up set. It may be easy to conclude that significant “psychological overlay” (an over-used and imprecise term) may exist. The implication is often made that the emotional distress may be etiologic but a number of studies have found that pain in patients without obvious organic findings may be psychologically indistinguishable from women with long-standing pain attributed to organic pathology. Simply being in pain for prolonged periods of time may induce holopical symptoms in the appropriately predisposed individual, almost endless of the magnitude of the "organic” contributions to the problem [4]. Although careful diagnostic evaluation will often uncover at least some idence of "organic" pathology, a distressingly large number of women experience disabling pelvic pain in the absence of palpable or [5,6] paroscopically visible tissue damage. Chronic pain with no diagnosable house can occur in any part of the body. Long after a disease or injury has healed, nerves can continue firing pain signals (neuropathic pain). This is thought to be caused by an overloading of the nervous system by extreme or Jong-lasting pain. It also helps in explaining why it is fairly common for chronic pelvic pain to have no obvious cause.

Conditions that can cause chronic pelvic pain should be investigated as follows

- Scar tissue (adhesions) in the abdomen and pelvis, typically caused by pelvic inflammatory disease, radiation treatment of the pelvis or pelvic or abdominal surgery.
- Endometriosis, the growth of uterine lining (endometrial) tissue outside of the uterus, which often causes cyclic pain and bleeding.
- Adenomyosis, the growth of endometrial tissue into the uterine muscle, which can cause cyclic pain and bleeding.
- Physical or sexual abuse in the recent or distant past (though poorly understood, combined emotional and physical traumas are thought to cause chronic pain or make it worse).
- Urinary tract problems, such as bladder inflammation (chronic interstitial cystitis). Pelvic organ cancers.
- Structural problems with the uterus.
- Muscle spasm or pain in the lower abdominal wall muscles (“trigger points”). This is sometimes linked to past surgery in that area.

METHODOLOGY

The descriptive cross sectional study was conducted in the Department of Obstetrics & Gynaecology, Tairunnessa Memorial Medical College and Hospital, Gazipur, Bangladesh over a period of 6 months between August 2015 to January 2016. A total of 50 cases within the study period were consecutively included inthe study. Female patients with chronic pelvic pain admitted at IPD (in patient department) of the above mentioned hospital during the study period.

Variables studied

The demographic variables to be studied were age, socioeconomic status and educational status. The clinical presentation and investigation findings were recorded. Management was given according to defined protocol and outcome was noted.

DATA COLLECTION

A structured data collection form was developed containing all the variables of interest which was finalized following pretesting. Data were collected by interview, observation and clinical examination and investigations.

Data processing and statistical analysis

Collected data were processed and analysed using SPSS (Statistical Package for Social Sciences). Descriptive statistics were used to analyse the data. The summarized data was presented in the form of tables and charts with due interpretation.

RESULTS

A total number of 50 cases were studied. Table 1 shows that nearly two-third (62%) of the patients were 35 or > 35 years and 38% below 35 years old.

Majority (90%) of the patients was married and housewife (88%). About one-third (32%) patients were illiterate, 44% primary level and 24% secondary & higher level educated. Seventy percent of patients belonged to low socioeconomic class and majority (94%) was at premenopausal stage.

Table-1: Distribution of patients by demographic characteristics (n = 50)

Demographic characteristics	Frequency	Percentage
Age(years)		
<35	19	38%
≥35	31	62%
Marital status		
Married	45	90%
Unmarried	04	8%
Widow	01	2%
Occupation		
Housewife	44	88%
Service	05	10%
Sex worker	01	2%
Level of education		
Illiterate	16	32%
Primary	22	44%
Secondary & above	12	24%
Socioeconomic status		
Low	35	70%
Middle	15	30%
Reproductive stage		
Premenopause	47	94%
postmenopause	03	6%

*Mean age = (35.5±8.3) years; range = (22-60) year.

Table-2: Distribution of patients by clinical presentation (n = 50)

Chief complaints	Frequency	Percentage
Site of pain		
Lower abdomen	49	98%
Backache	01	2%
Duration of pain (y ears)		
<1.5	21	42%
≥1.5	29	58%
Classification of pain		
Cyclical	22	44%
Non-cyclical	28	56%
Type of pain		
Constant	37	74%
Intermittent	13	26%
Nature of pain		
Dull	38	76%
heavy	11	22%
Aching	01	2%
Severity of pain		
Mild	23	46%
Moderate	23	46%
Severe	04	8%

Table 2 shows that majority (98%) of patient's complaint of lower abdomen pain and 2% backache. Forty two percent of patients had duration of pain less than 1.5years and 58% 1.5 years or more. Forty four percent had cyclical and 56% non-cyclical pain. About three-quarter (74%) had constant pain and 26% intermittent. Forty six percent of patients had mild, another 46% moderate and 8% severe pain.

Table-3: Distribution of patients by clinical presentation (contd.)

Chief complaints	Frequency	Percentage
Polymenorrhoea	03	6%
Polymenorrhagia	06	12%
Menorrhagia	38	76%
Dysmenorrhoea	45	90%
Amenorrhoea	02	4%
Dysparunia	24	48%
Vaginal discharge	22	44%
subfertility	16	32%

Menstrual profile shows that polymenorrhoea was present in 6%, polymenorrhagiain 12%, menorrhagia in 76%, dysmenorrhoea is 90%, and amenorrhoea in 4%, dysparunia in 48%, pain during daefecation in 16%, vaginal discharge in 44% .Thirty two percent of patients had a history of subfertility (table 3).

Of the 22 patients who complained of vaginal discharge, about 55% had whitish discharge, 27.3% mucoid and 18.2% purulent discharge (Fig. 1).

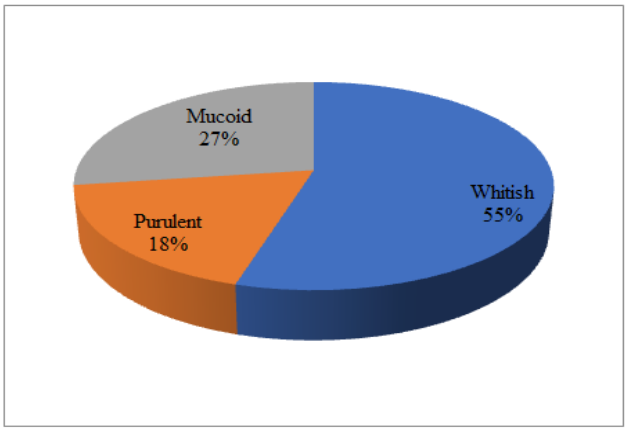

Fig-1: Characteristics of vaginal discharge.

Table-4: Distribution of patients by menstrual history

Menstrual history	Frequency	Percentage
Age at menarche(n=50)		
11 years	03	6%
12 years	27	54%
13 years	20	40%
Menstrual period (n=47)		
<4 (days)	21	44.7%
≥ 4 (days)	26	55.3%
Duration of cycle (n=47)		
Short cycle(<28 days)	09	19.2%
Normal cycle (28 days)	31	65.9%
Extended cycle (>28 days)	07	14.9%
Menstrual flow (n=47)		
Average	16	34.1%
Excessive	31	65.9%

Table 4 shows that over half (54%) of patients experienced their first menstruation at 12 years of age, followed by 40% at 13 years and 6% at 11 years. Forty five percent patients had menstrual period of on an average < 4 days and 58% 4 days or more. Nearly two-third (65.9%) of the patients had normal menstrual cycle, 19.2% had short cycle and 14.9% extended cycle. Mote the one-third (34.1%) of the patients had average menstrual flow and the rest 65.9% excessive flow.

Table-5: Distribution of patients by general examination (n= 50)

General examination	Frequency	Percentage
Anaemia		
Mild	47	94%
Moderate	06	6%
Jaundice	02	4%
Oedema	05	10%
Blood pressure		
Hypertensive	07	14%
Normotensive	43	86%

Table 5 shows that majority (94%) of the patients had mild anaemia and 6%moderate anaemia. Two (4%) patients had jaundice and 10% oedema. Fourteen percent of patients was hypertensive.

Table-6: Distribution of patients by perabdominal examination (n= 50*)

Per abdominal examination	Frequency	Percentage
Tenderness in lower abdomen	46	92%
Mass in lower abdomen	22	44%

*total will not correspond to 100%, for multiple response

Per abdominal examination shows that majority (92%) of patient's exhibited tenderness in lower abdomen and 44% mass in lower abdomen (table 6).

Table-7: Distribution of patients by per speculum examination (n= 50)

Per speculum examination	Frequency	Percentage
Vagina		
Congestive	04	8%
Healthy	46	92%
Cervix		
Normal	24	48%
Hypertrophied	14	28%
Congested	08	16%
Nabothiancyst	02	4%
Discharge	02	4%
Os		
Closed	32	64%
Patulous	18	36%

Forty six (92%) of 50 patients had healthy vagina and 8% congestive. In terms of cervical health, 48% normal, 28% hypertrophied 16% congestive, 4% Nabothian cyst and another 4% discharge. Sixty four percent of patients had closed Os and 36% patulous Os (table 7).

Table-8: Bimanual examination findings (n=50)

Bimanual examination findings	Frequency	Percentage
Cervical motion tenderness	41	82%
Size of uterus		
Normal	30	60%
Bulky	20	40%
Position of uterus		
Anteverted	40	80%
Retroverted	10	20%
Mobility		
Mobile	22	44%
Restricted	25	50%
Fixed	03	6%
Fornices		
Tender	33	66%
Thickened	09	18%

Bimanual examination findings	Frequency	Percentage
Fixed	01	2%
Free	07	14%
Presence of tuboovarian mass	23	46%
Size of tuboovarian mass (n=23)		
<9 cm	08	34.8%
≥9cm	15	65.2%
Shape (n=23)		
Circumscribes	15	78.3%
Irregular	08	21.7%
Site (n=23)		
RLQ	01	4.3%
LLQ	02	8.6%
Hypogastric region	20	87.1%
Consistency (n=23)		
Cystic	16	69.6%
Partly cystic, partly solid	07	30.4%
Mobility (n=23)		
Mobile	06	26.1%
Restricted	17	73.9%

Findings of bimanual physical examination are illustrated in (table 8). Forty one (82%) of 50 patients had cervical motion tenderness. Sixty percent of patients had normal uterus and 40% bulky uterus. Most (80%) of the patients uterus was anteverted and 20% retroverted.

Table-9: Distribution of patients by investigations (n = 50)

Investigations	Frequency	Percentage
Level of HB (gm/dl) (n = 50)		
< 7 (Severe anaemia)	02	4%
7 - 9.9 (Moderate anaemia)	08	16%
10 - 11.9 (Mild anaemia)	40	40%
TC of WBC (n = 50)		
5000 - 11000 (Normal range)	43	86%
> 11000 (Leucocytosis)	07	14%
ESR (n = 50)		
Normal (10 - 30 mm)	48	96%
Raised (> 30 mm)	02	4%
Endocervical swab for C/S (n = 18)		
Positive findings: Inflammatory Cell	04	22.2%
Malignant Cell	00	0.0%
Negative findings	14	77.8%
Paps smear test (n = 28)		
Positive	13	46.4%
Negative	15	53.6%
CA-125 (n=6)		
Normal (<35 IU/ml)	01	16.7%
Raised (35 IU/ml)	05	83.3%

The findings of the laboratory investigations are illustrated in (table 9). Data show that all the patients were anaemic to some extent - 40% were mildly anaemic, 16% moderately anaemia and 4% with severe anaemia. Leucocytosis was found in14% cases and raised ESR in 4% cases. Of the 50 cases, 18 were tested for end cervical swab. Of them 4(22.2%) were found positive, while out of 28 Paps Smear Test, 46.4% was revealed to be positive. Of the 6 cases investigated forCA-125, 5(83.3%) exhibited raised a level (35 IU/ml).

Table-10: Findings obtained from ultrasound examination (n=50)

Ultrasound findings	Frequency	Percentage
Endometriosis with chocolate eyst	19	38%
Features of PID	22	44%
Ovarian tumour	06	12%
Adenomyosis	01	2%
Fibroid uterus	01	2%
Enlarged ovary	01	2%

Findings derived from ultrasound examination of abdomen were endometriosis with chocolate cyst (38%), features of PID (44%) and ovarian tumour (12%) and others (adenomyosis, fibroid uterus and enlarged ovary each was 2%) (Table 10).

Table-11: Distribution of patients by clinical diagnosis (n=50)

Clinical diagnosis	Frequency	Percentage
PID	21	42%
Endomeriosis with chocolate cyst	19	38%
Ovarian tumour	06	12%
Adenomyosis	01	2%
Fibroid uterus	01	2%
Residual ovarian syndrome	01	2%
Acute exacerbation of chronic pelvic infection	01	2%

Over 42% of the cases were clinically diagnosed as PID, 38% endometriosis with chocolate cyst and 12% ovarian tumour. Adenomyosis, fibroid uterus, residual ovarian syndrome and acute exacerbation of chronic pelvic infection each was found in 2% cases (table 11).

DISCUSSION

Women with chronic pelvic pain present unique challenges to the clinician. Unlike many gynecological conditions that are relatively treatable, chronic pelvic pain may not be cured in a large number of patients. This is ultimately unsatisfying for both the patient and the physician. In some cases, physicians may become frustrated and ascribe the patient's pain to psychiatric disease. Many women are also told that they have to live with their pain'. It is unacceptable to tell a patient that she must tolerate chronic pain and that nothing more can be done. It is also inappropriate to make patients feel that their pain is imaginary and in their heads' [7]. In the present study, mean age of the patients was 35.8 ± 8.3 years which is slightly higher than the mean age reported by Bunyavejchevin *et al.* [8] (33±9 years), while Redecha *et al.*[9] In the present study 88% were housewife and 32% illiterate. Santosh A *et al.* [10] in their series found 86% housewives which is consistent with the present study, but reported a higher rate of illiteracy (74%) than we found in the present study. A study conducted in Jamshoro showed that most of the women who were suffering from CPP due to PID were housewives (78%) [11]. Seventy percent of patients in our study belonged to low socioeconomic class which is comparable to the findings of Sharma [12] who reported 68.1%poor, 29.4% middle class and 12.5% rich. In Santosh's study 56% belonged to low socioeconomic class [10]. In our study nearly three-fifth (58%) of the patients had more than 1.5 years duration of pelvic pain which is slightly higher than the findings of Zuboriwho observed an average duration of CPP to be 12.7 months. Our study revealed dysmenorrhoea to be the predominant complaines (90%). In another study dysmenorrhoea was a common complaint experienced by 95% of women of reproductive age [13]. Santosh [10] reported dysmenorrhoea to be the most frequently associated symptom (74%) followed by dyspareunia (72%).Prevalence rates of dysmenorrhoea abdominal pain and dyspareunia found in UK community based studies were 45-97%, 23-29 % and 8%respectively. Over 40% of the cases were clinically diagnosed as PID and 40%endometriosis with chocolate cyst. Adenomyosis, fibroid uterus each was 4%. Ovarian cyst, residual ovarian syndrome and acute exacerbation of chronic pelvic infection each was found in 2% cases. Santosh's study, however, reported a lower rate of PID (14%) and higher rate of fibroid uterus (8%) [10]. A better approach is one in which patients with chronic pelvic pain is informed that although their pain may not be cured, it can be managed. The patients should also be told that their pain is real, even when our limited medical science has failed to elucidate the aetiology of that pain. Patients should be informed, however, that psychiatric support is available to them, not because they are 'crazy' but because all patients with chronic disease can benefit from supportive counseling and appropriate psychiatric intervention. Ultimately, many patients with chronic pelvic pain benefit from sensitive physicians who are willing to spend the time necessary to alleviate what isoften a significant threat to the patient's quality of life. In many cases a multidisciplinary effort produces the best results [6]. Finally it can be said that every patient with chronic

pelvic pain is different. Some patients initially go to a gynaecologist and may receive definitive laparoscopic and/or medical treatment. Unfortunately, a great number of women are not helped by their initial providers and they typically migrate from one physician to another in search of pain relief. It is not uncommon for such a patient to have seen four or more providers and receive several laparoscopies and laparotomies. By this time, a true pain syndrome exists in which there is a great degree of interference with daily activities. Further surgery is unlikely to benefit this patient, who is often dismissed as mentally impaired [7]. In these seemingly intractable cases, one specialist is not adequate to remedya chronic pain syndrome and this is where a multidisciplinary effort is helpful. The patients can be seen jointly by gynaecologists, anaesthetists, psychiatrists and additional specialists who then combine their resources to manage the patients' chronic pain syndrome [7].

CONCLUSION

In the light of the findings of the study discussion thereof, it is evident that evaluation of pelvic pain should done systematically. Pain, its nature, site and duration may give an important clue to further investigation and diagnosis. Past obstetric history like MR or abortion, postpartum fever or puerperal sepsis and ectopic pregnancy may have link to chronic pelvic pain. Chronic pelvic pain may also be linked to menstruation. So a detailed history of menstruation including duration of cycle and period, average flow and any pain before or during the period should be investigated. Past history of lower abdominal pain, pain with fever or lower abdominal surgery may have significant association with present pelvic pain and obstetrician must look for it. Per abdominal examination and per speculum examination of cervix and uterus should be done to aid in diagnosis. Peps test, end cervical swab examination, ultra-sonogram of lower abdomen and finally, laparoscopic evaluation of pelvic pain help in reaching a conclusive diagnosis. However, in some patients, even after careful history taking, examination and laboratory investigations, a definitive diagnosis cannot be established. Such patients require psychological therapy. Patients should be assured that their pain has no definitive cause and would go away soon.

REFERENCE

1. Melzack, R. (1986). Neurophysiologic foundations of pain. In: Sternbach RA, Ed. The psychology of pain. *New York: Raven Press*, 1-24.
2. American College of Obstetricians and Gynecologists. (2004). Chronic pelvic pain. ACOGPractice Bulletin No. 51. Obstetrics and Gynecology, *103*(3); 589-605.
3. Melzack, R., Wall, P.D. (1965). Pain mechanisms: A new theory. Science, 150-971.
4. Bonica, J.J. (1953). The Management of Pain. Philadelphia, Lea &Febiger.
5. Howard, F.M. (2003). Chronic pelvic pain. *Obstetrics and Gynecology*, *101*(3); 594- 611.
6. Walker, E., Katon, W., Harrop-Griffiths, J., Holm, L., Russo, J., & Hickok, L. R. (1988). Relationship of chronic pelvic pain to psychiatric diagnoses and childhood sexual abuse. *Am J Psychiatry*, *145*(1), 75-80.
7. Stovall, T. G., Ling, F. W., & Crawford, D. A. (1990). Hysterectomy for chronic pelvic pain of presumed uterine etiology. *Obstetrics and gynecology*, *75*(4), 676-679.
8. Bunyavejchevin, S., Rungruxsirivorn, T., Pinchantra, P., Wisawasukmongchol, W., Suwajanakorn, S., & Limpaphayom, K. (2003). Laparoscopic finding in Thai women with chronic pelvic pain. *Journal of the Medical Association of Thailand= Chotmaihet Thangphaet*, *86*, S404-8.
9. Redecha, M., Niznanska, Z., Korbel, M., Borovsky, M., & Chabadova, J. (2000). Laparoscopic findings in women with chronic pelvic pain. *Bratislavske lekarske listy*, *101*(8), 460-464.
10. Santosh, A., Liaquat, H.B., Fatema, N., Liaquat, S. (2010). Department of Obstetrics & Gynaecology, Jinnah Postgraduate Medical Centre, JPMC, 64; 4
11. Bhurt, A. W., Fikree, F. F., Bhurt, A. M., Channa, G. Z., Soomro, R. A., & Bhurt, N. (1999). Prevalence and risk factors of symptoms of pelvic inflammatory disease in a rural community of Jamshoro, Sindh, Pakistan. *Journal of Pakistan Medical Association*, *49*(8), 188.
12. Sharma, J. B., Roy, K. K., Pushparaj, M., Kumar, S., Malhotra, N., & Mittal, S. (2008). Laparoscopic findings in female genital tuberculosis. *Archives of gynecology and obstetrics*, *278*(4), 359-364.
13. Disorders of menstrual cycle. (2006). In: Clayton SG, Monga A, eds. Gynaecology by Ten Teachers. *London: Book Power*, 43-58.