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Evaluation of chronic pelvic pain in females a prospective observational study

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Abstract
Introduction: Pain is an unpleasant sensory and emotional experience associated with actual potential tissue damage or described in terms of such damage· Chronic pelvic pain (CPP) is defined by the European Association of Urology (EAU) as "chronic or persistent pain perceived in structures related to pelvis. It is often associated with negative cognitive, behavioral, sexual and emotional consequences and might have symptoms suggestive of lower urinary tract, sexual, bowel, pelvic floor or gynaecological dysfunction.
Aim& Objectives:
Aim: To evaluate the causes of chronic pelvic pain in females.
Objectives: To describe the differential diagnosis of chronic pelvic pain. To detect chronic pelvic pain early and aid in its management plan further.
Materials and Methodology: Female patients attending department Obstetrics and Gynaecology of KIMS hospitals between 18-70 years age, were enrolled into study during the period from 14th September, 2020 to 31st May 2022.
Results: It is observed that 38% of the women were diagnosed under the category Endometriosis and 14% with Adenomyosis. Hence endometriosis is the most common cause of CPP based on the study.
It is observed that 48% women had to undergo surgical management, 27% went for medical management. Almost 9% cases were referred to other branches which included psychology and orthopaedics.
Conclusion: Women with CPP often have other associated symptoms. Most common factor was dysmenorrhea as per this study (51%). When past surgical history in the 100 women was taken into consideration, CPP was more prevalent in those who had a history of LSCS (63%) Multidisciplinary approach is helpful in most of the cases.

Keywords: Chronic pelvic, pain in females, observational study

Introduction
Pain is an unpleasant sensory and emotional experience associated with actual potential tissue damage or described in terms of such damage [1]. Chronic pelvic pain (CPP) is defined by the European Association of Urology (EAU) as "chronic or persistent pain perceived in structures related to pelvis. It is often associated with negative cognitive, behavioral, sexual and emotional consequences and might have symptoms suggestive of lower urinary tract, sexual, bowel, pelvic floor or gynaecological dysfunction [2].
The American College of Obstetricians and Gynaecologists (ACOG) define CPP as "non-cyclic pain lasting for six or more months that localizes to anatomic pelvis, anterior abdominal wall, at or below umbilicus, the lumbosacral back or buttocks and has sufficient severity to cause functional disability or leading to medical care [3].
EAU further defines Chronic Pelvic Pain Syndrome (CPPS) as "the occurrence of CPP with no proven infection or other obvious local pathology which accounts for pain.
Aspects of pain may include dysmenorrhea, dyspareunia, dysuria, and dyschezia. Dysmenorrhea in isolation does not constitute CPP. CPP affects upto 24% of women worldwide. It has considerable effect on patient's quality of life (QOL) [4]. In many cases pathology is multifactorial. In some, an underlying structural pelvic pathology can be identified, but often pain is idiopathic [5].

Aim: To evaluate the causes of chronic pelvic pain in females.

Objectives
To describe the differential diagnosis of chronic pelvic pain.

To detect chronic pelvic pain early and aid in its management.
To plan further management by multidisciplinary approach wherever necessary.
To improve quality of life.

Specific objectives
1. To know the different causes of chronic pelvic pain in females
2. To assess and highlight the importance of history, examination and ultrasonography in its evaluation
3. To reduce the burden of chronic pelvic pain on the quality of life

Materials and Methodology
Source of data
Study site: Department of Obstetrics and Gynaecology at Krishna Institute of Medical Sciences, Secunderabad, Telangana, India. Krishna Institute of Medical Sciences is a 1000 bedded tertiary care corporate hospital.

Study Period: 14th September 2020 to 31st May 2022.

Study population
All the female patients complaining of chronic pelvic pain and evaluated for further management satisfying the inclusion and exclusion criteria in the department of Obstetrics and Gynaecology.

Sample Size: 100

Statistical Analysis
As per data the statistical analysis shall be calculated by$N= Z^2 {}^*P*Q /d^2$
N= sample size Z=1.96 at 95% CI
P= 5.2% (based on previous study, prevalence of chronic pelvic pain in India) Q=100-P=94.8%
d=5% (Precision/Acceptable margin of error) N= 1.96×1.96×5.2x94.8/5×5
N=80
Making it to near value and 20% non-response rate sample size considered is100.

Study Design: Prospective observational study.

Study Place: Department of Obstetrics & Gynaecology, KIMS Hospital Secunderabad, Telangana.

Study subjects
Females between 18-70 years attending the department of Obstetrics and Gynaecology KIMS hospitals Secunderabad with complaint of chronic pelvic pain.

Sample design and sample size
Female patients attending department Obstetrics and Gynaecology of KIMS hospitals between 18-70 years age, were enrolled into study during the period from 14th September, 2020 to 31st May 2022. The average number of female patients presenting with chronic pelvic pain is 2 per day. 100 patients were enrolled into the study.

Inclusion criteria
1. Female patients in the age group of 18-70 years attending outpatient department of Obstetrics and Gynaecology, KIMS, Secunderabad.
2. Reproductive / Perimenopausal/Postmenopausal women.
3. Female patients who were willing to participate in the study and be in follow-up.

Exclusion criteria
Women not willing to participate in the study

Methodology
This was a prospective observational study, all women fulfilling the inclusion and exclusion criteria were enrolled in the study and informed consent taken. All the enrolled females were evaluated by detailed history taking, which includes age, history of present illness, family history, past medical and surgical history, obstetric history, prior treatment taken, detailed examination and routine investigations were done after obtaining approval and consent from the ethical committee.
Complete general physical examination and gynaecological examination will be done, reports will be noted. Based on all the findings, a final diagnosis of the cause of pain will be made and patients treated accordingly. Those requiring additional aspect of care were referred to other departments. Those who were found to have psychological problems were referred to a psychologist.

Parameters to be studied
In addition to detailed history taking, clinical examination, routine investigations, the following parameters will also be evaluated.

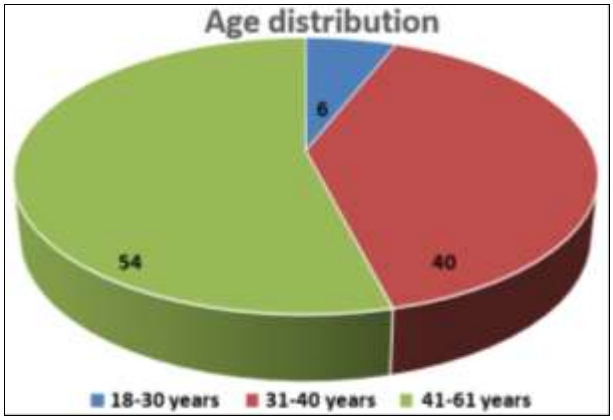
Demographic and obstetric factors
1. Age
2. Parity

Pain and its components
1. Aggravating and relieving factors
2. Association with other factors (Dysmenorrhea, Dyspareunia, white discharge)
3. Past surgical history
4. Examination findings

Plan for analysis of data
Data was coded in tabular form and analyzed by using proper statistical method by the statistical package for the social sciences (spss) version 20.0. The descriptive statistics for continuous and categorical variables have been presented as mean standard deviation and percentages respectively.

Sample collection
This study was conducted under participant's voluntary informed consent after explanation of purpose, method and course. Individuals were enrolled in to study after going through inclusion and exclusion criteria.

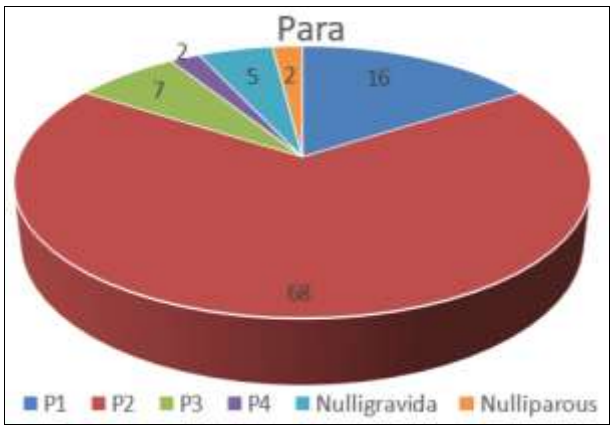
Results
Age distribution
A total of 100 women were included in this study. The mean age of our patients is 42.5 years with standard deviation of 7.7 years. All women are above or equal to 18 years (as per inclusion criteria), minimum age included is 27 years, and maximum is 61 years.



Pie chart 1: Pie chart showing age distribution of women with CPP

Parity

Women of all parties were included in the study. P2 are highest among the study group i.e., 68% followed by P1. Nulligravida and nulliparous account to a total of 7%.



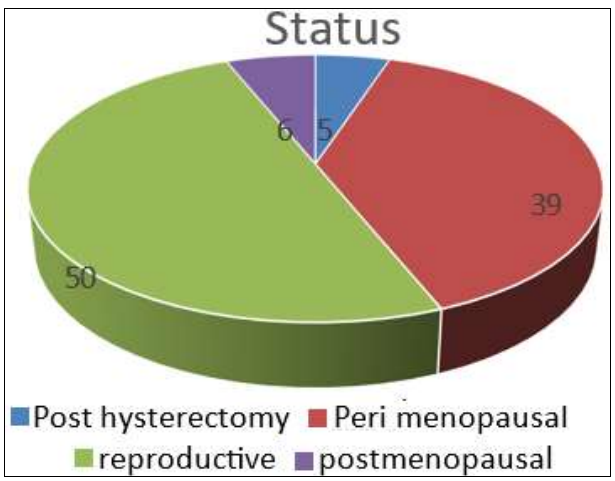
Pie chart 2: Pie chart showing comparision of Parity related to CPP

Presenting complaints

It is observed that 94% of the women are presented with abdominal pain and lower backache, 5% had bowel and bladder symptoms (Dysuria, Dyschezia).

Menstrual status

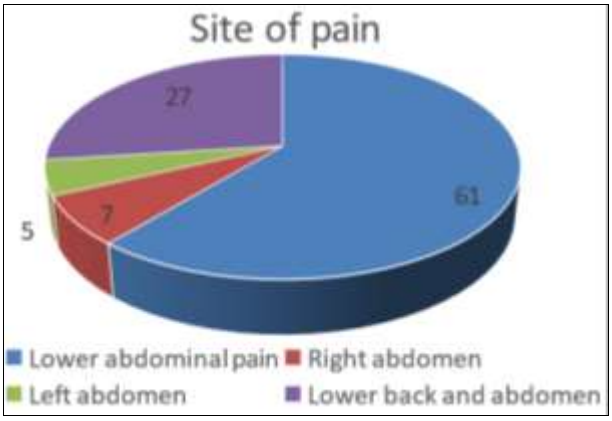
It is observed that CPP was highest among women of reproductive status followed by women in perimenopausal status.



Pie chart 3: Pie chart showing menstrual status of women

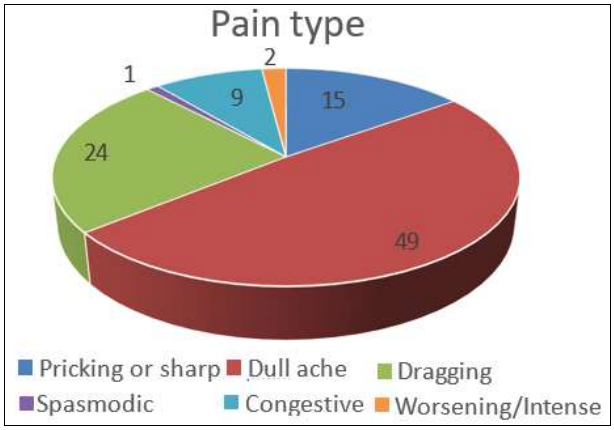
Site, type, progression of pain

About 61% females with CPP had lower abdomen as the site of pain. Lower back and abdomen accounted to 27%



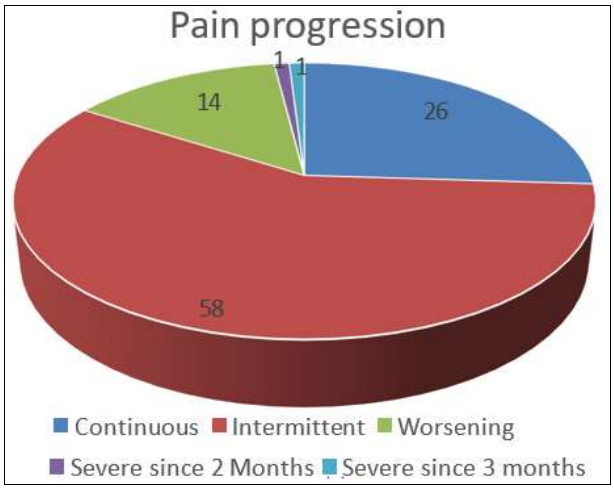
Pie chart 4: Pie chart showing site of pain with CPP

When type of pain was taken into consideration, dull type of ache was most commonly seen in women with CPP (49%).



Pie chart 5: Pie chart showing type of pain with CPP

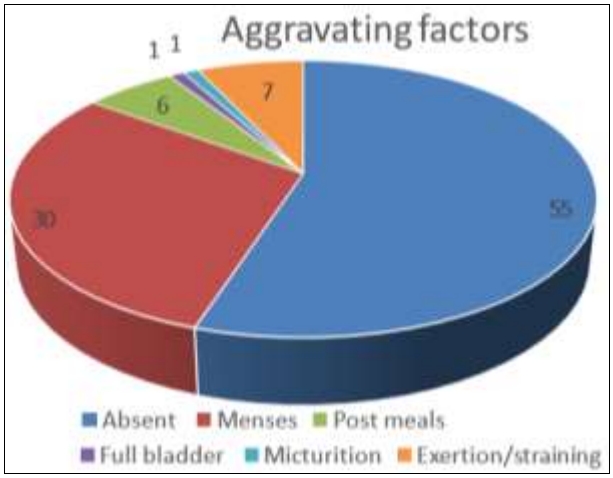
Progression of pain was categorized; intermittent pain was felt by 58% of patients. 20% of women had continuous pain.



Pie chart 6: Pie chart showing Progression of pain with CPP

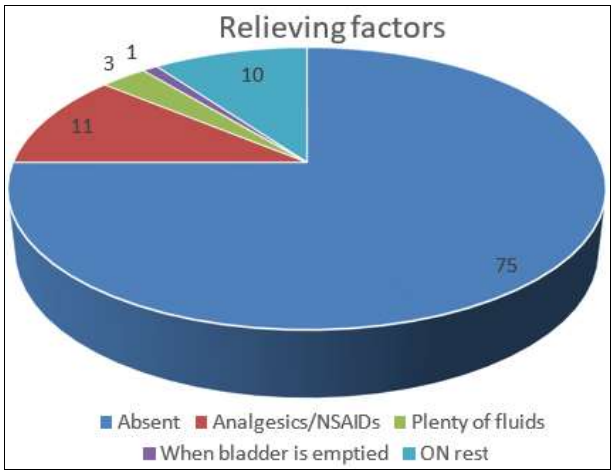
Aggravating and Relieving factors

About 55% of women with CPP had no aggravating factors. 30% of them had menses as aggravating factor. This suggests the positive correlation of CPP and menses



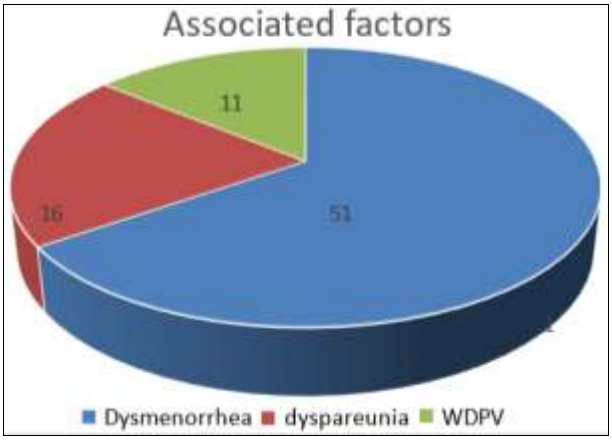
Pie chart 7: Pie chart showing aggravating factors of CPP

It is found that 75% of women with CPP had no relieving factors. NSAIDs and others were relieving in 11% of women.



Pie chart 8: Pie chart showing relieving factors of CPP

Associated factors: Out of all the factors associated with CPP taken into the study, 51% of women had dysmenorrhea as the most common factor and 16% of women had dyspareunia.



Pie chart 9: Pie chart showing associated factors of CPP

Comorbidities

About 33% of women were hypothyroid and 15% were diabetic in women with CPP followed by hypertension and others.

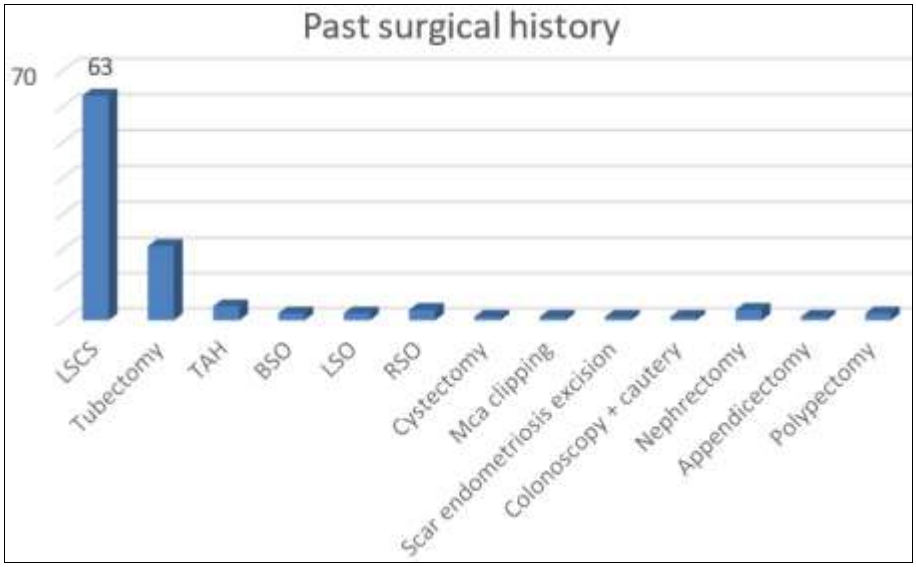
Categories	N	%
Diabetes	15	15.0
Hypertension	10	10.0
Hypothyroid	33	33.0
Pulmonary TB	1	1.0
Epilepsy	1	1.0
Cholelithiasis	1	1.0
HBsAg	1	1.0

Comorbidities in relation to CPP

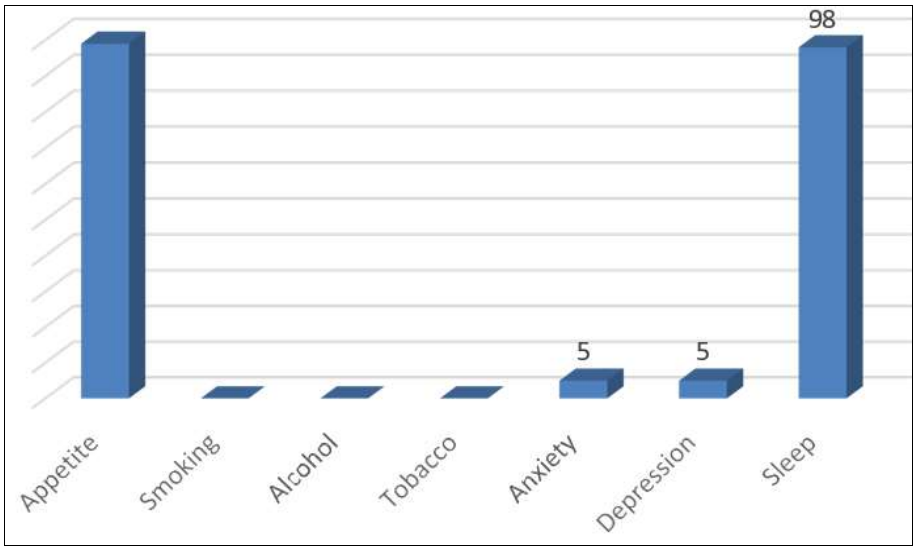
Past surgical history

When past surgical history is taken into account, 63% of cases had history of LSCS.

Categories	N	%
LSCS	63	63.0
Tubectomy	21	21.0
TAH	4	4.0
BSO	2	2.0
LSO	2	2.0
RSO	3	3.0
Cystectomy	1	1.0
MCA clipping	1	1.0
Scar endometriosis excision	1	1.0
Colonoscopy + cautery	1	1.0
Nephrectomy	3	3.0
Appendicectomy	1	1.0
Polypectomy	2	2.0

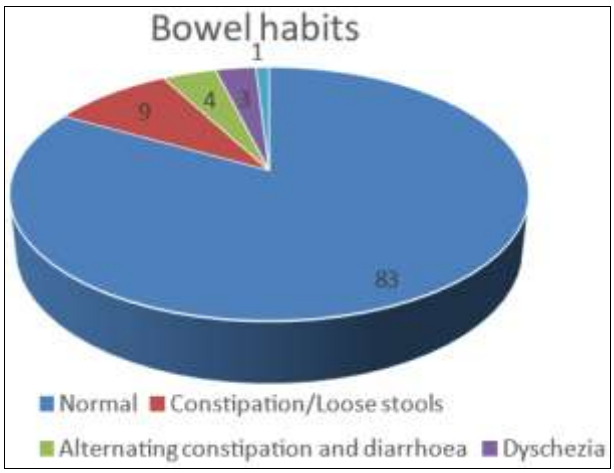


Pie chart 10: Past surgical history in women presented with CPP



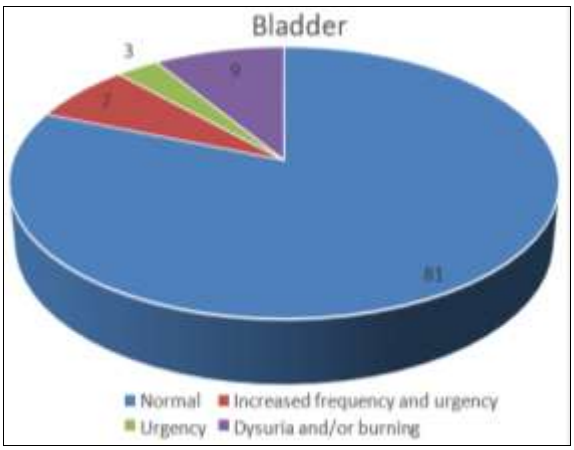
Pie chart 11: Personal History

Bowel and bladder habits:
About 83% of women with CPP had normal bowel and bladder habits, 4% had alternating constipation and diarrhea, suggestive of IBS.



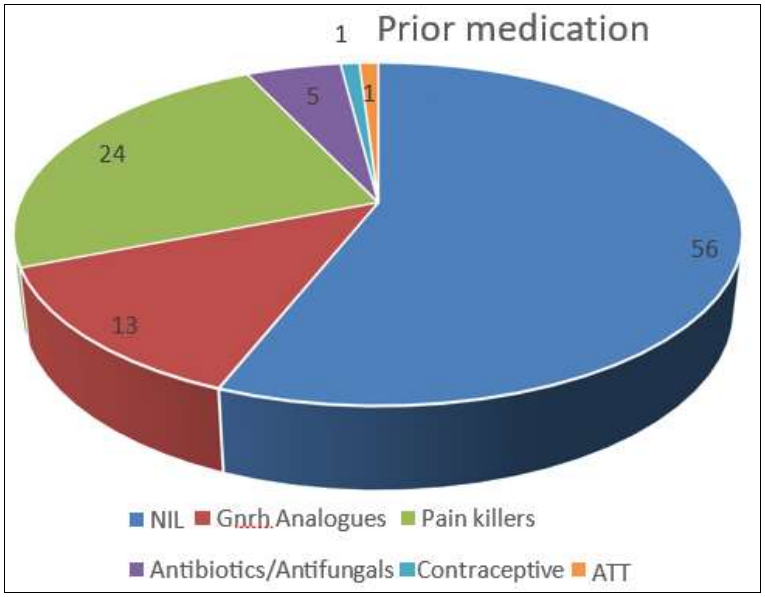
Pie chart 12: Pie chart showing bowel habits in patients with CPP

Bladder habits: Bladder habits were normal in 81% of women with CPP and 9% had dysuria.



Pie chart 13: Pie chart showing bladder habits in patients with CPP

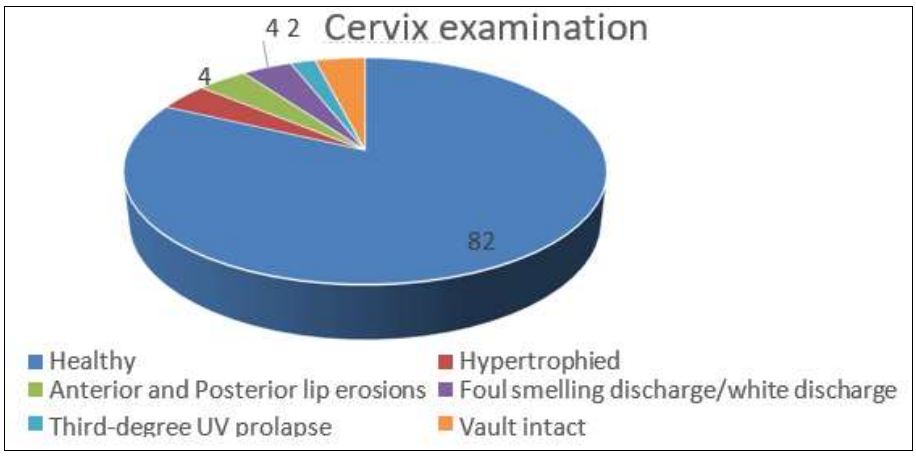
Prior Medication used: About 56% of cases had not used any medication before presenting to the hospital which showcases the ignorance of lack of awareness of consequences of pain among women. 24% of women used analgesics and 13% used GnRH analogues



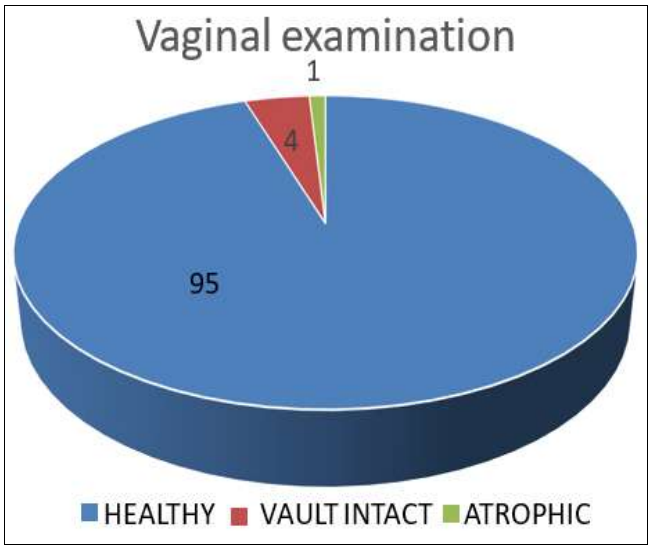
Pie chart 14: Pie chart showing prior medications used for CPP

Physical examination – P/A, P/S, P/V - Findings

On physical examination, P/A- 61% had soft and non-tender abdomen, 28% had tenderness. P/S- Cervix was healthy in 82% cases and hypertrophied in 4% cases P/V- Normal sized uterus in 57% cases, bulky in 32%, mobile uterus in 97%, anteverted in 87% and Retroverted in 8%



Pie chart 15: Pie chart showing cervix examination per speculum



Pie chart 16: Pie chart showing vaginal examination

Size of the uterus in bimanual examination

Categories	N	%
Vault intact	5	5.0
Normal	57	57.0
Bulky size	32	32.0
Small size	3	3.0
No data	3	3.0

Mobility of uterus in bimanual examination

Categories	N	%
Mobile	97	97.0
Immobile	3	3.0

Version of uterus in bimanual examination

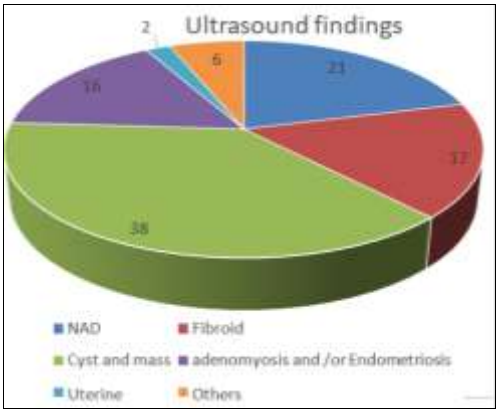
Categories	N	%
Anteverted	87	87.0
Retroverted	8	8.0
Vault intact	5	5.0

Fornices findings in bimanual examination

Categories	N	%
Full	5	5.0
Free	87	87.0
Shallow	1	1.0
Vault intact	4	4.0
Not checked	3	3.0

Investigations

Ovarian cyst and mass were found to be the most detected findings in USG in patients with CPP followed by normal sonography findings, fibroid, endometriosis and Adenomyosis respectively.

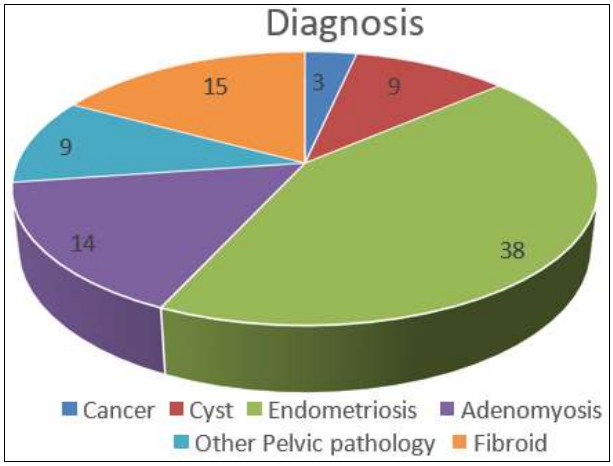


Pie chart 17: Pie chart showing USG findings in patients with CPP

Investigation	Categories	N	%
HB	>/= 12	22	22.0
	>/= 10	27	27.0
	<10	15	15.0
	Not done	36	36.0
TSH	WNL	38	38.0
	Not done	62	62.0
CUE	WNL	17	17.0
	Pus cells	4	4.0
	Glucose	2	2.0
	RBC	1	1.0
	Not done	76	76.0
Urine C/S	Negative	1	1.0
	Positive	3	3.0
	Not done	96	96.0
FSH	WNL	15	15.0
	Abnormal	1	1.0
	Not done	84	84.0
RBS	WNL	5	5.0
	Not done	95	95.0
CA-125	WNL	5	5.0
	Abnormal	10	10.0
	Not done	85	85.0
ESR	>/= 30	2	2.0
	Not done	98	98.0
Pap Smear	Normal	3	3.0
	Abnormal	2	2.0
	Not done	89	89.0
	Done	6	6.0
Other markers	Done	6	6.0
	Not done	94	94.0
Ultrasound	NAD	21	21.0
	Fibroid	17	17.0
	Cyst and mass	38	38.0
	Adenomyosis and /or Endometriosis	16	16.0
	Uterine	2	2.0
	Others	6	6.0
MRI	1	79	79.0
	2	6	6.0
	3	9	9.0
	4	3	3.0
	5	3	3.0
BIOPSY	Cervical biopsy	1	1.0
	Not done	99	99.0
HPE	Early secretory endometriosis	1	1.0
	Not done	99	99.0

Investigations done in women with CPP

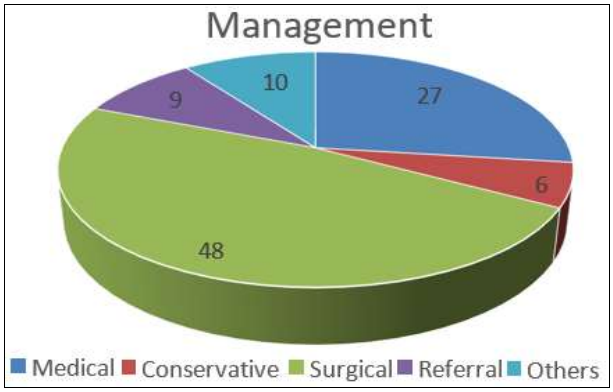
Diagnosis: It is observed that 38% of the women were diagnosed under the category Endometriosis and 14% with Adenomyosis. Hence endometriosis is the most common cause of CPP based on the study.



Pie chart 18: Pie chart showing final diagnosis in 100 women presented with CPP

Management

It is observed that 48% women had to undergo surgical management, 27% went for medical management. Almost 9% cases were referred to other branches which included psychology and orthopaedics



Pie chart 19: Pie chart showing management modalities for CPP in the study

Discussion

Chronic pelvic pain has gained significant impact on the quality of life in women. It is estimated to have a prevalence of 3.8% in women. Often the etiology of chronic pelvic pain is not clear, as there are many disorders of the reproductive tract, gastrointestinal system, urological organs, musculoskeletal system, and psycho neurological system that may be associated with chronic pelvic pain. The history and physical examination are crucial in evaluating a woman with chronic pelvic pain and must address all of the possible systems potentially involved in chronic pelvic pain, not just the reproductive system. Laboratory and imaging studies should be selectively utilized, as should laparoscopy. Conscious laparoscopic pain mapping has been proposed as a way to improve information derived from laparoscopic evaluations. Treatment of chronic pelvic pain may consist of two approaches. One is to treat chronic pain itself as a diagnosis, and the other is to treat diseases or disorders that might be a cause of or a contributor to chronic pelvic pain.

In many cases, the pathology is multifactorial. Many studies have shown that the surgical approach is frequently not curative. For example, for endometriosis, 20–28% of patients do not experience a reduction in pain and some require another operation: 25.5% within 2 years and 40–50% after 5 years.

CPP is often resistant to surgical and medical treatment and appears to respond better to a multimodal, holistic approach rather than reliance on laparoscopy alone. An evidence base is needed for aspects of a multidisciplinary approach with a focus on improving the patient's quality of life, including self-management and complementary therapies, while also taking into account fertility plans. Like diabetes or hypertension, CPP is a chronic, idiopathic, and incurable but successfully treatable condition.

The diagnostic and therapeutic difficulties are remarkable in patients with CPP. Therefore evaluation, assessment and Objectivation tools are often necessary to address each patient properly and their clinical needs It is usually not possible to identify a single etiology or definitive cure for CPP. In at least half of cases, there are one or more associated entities, such as irritable bowel syndrome, interstitial cystitis/painful bladder syndrome, endometriosis or pelvic adhesions.

Expert opinion says that in the absence of a single clear etiology, CPP can be conceptualized as a complex neuromuscular – psychosocial disorder consistent with chronic regional pain syndrome. Certain red flag symptoms such as post coital bleeding, post-menopausal bleeding or onset of pain, unexplained weight loss, pelvic mass and hematuria may be suggestive of a serious systemic disease

The history should include questions about aggravating and relieving factors, association of pain with menses, sexual activity, urination, defecation and response to any prior treatment. An enquiry about patient perspectives on possible origins of pain and validation of concerns and anxiety is a must.

This study is being carried out to find out the different causes of chronic pelvic pain in women attending the department of obstetrics and gynecology of Krishna institute of medical sciences, Hyderabad.

Age Distribution

The mean age of the women in my study was 42.5 years ranging from 18 to 70 years?

Parity

Most of the women in my study with CPP are Para 2 i.e., 68%. A study on evaluation and initial management of CPP in rural and western UP by Shikha Seth, Neeru Goel, 160 cases has shown high parity to be associated with high prevalence of CPP.

Complaints

In my study, it is observed that 94% of the women are presented with abdominal pain and lower backache. A study on evaluation and initial management of CPP in rural and western UP by Shikha Seth, Neeru Goel, 160 cases has shown that "chronic constant lower abdominal pain is the most common presentation (64%).

Associated Factors

In my study, out of all the factors associated with CPP taken into the study, 51% of women had dysmenorrhea as the most common factor and 16% of women had dyspareunia.

In a study by Min Hao *et al*, out of 480 cases of endometriosis, 52.2% had dysmenorrhea, 23.8% had dyspareunia, and 15.4% had dyschezia.

Bladder Habits

In my study, bladder habits were normal in 81% of women with CPP and 9% had dysuria. In a retrospective study on 4083 patients with endometriosis conducted by Pietro G *et al*., with focus on the symptoms showed low occurrence of urinary

disorders in CPP which is usually the main symptom.

Medical History

In a study conducted by Pallavi Latthe and *et al*, heavy menstrual flow, PID, pelvic athology, psychological comorbidities were associated with increased risk of chronic non- cyclical pain In my study about 5% of patients had depression and 5% had anxiety issues associated with pelvic pain.

Past Surgical History

In a study conducted by Pallavi Latthe and *et al*, it was found that previous caesarean section was a risk factor for chronic non-cyclical pelvic pain. In my study, out of 100 cases, 63% had prior history of caesarean section.

Investigations

A study conducted by Damyanti Sharma and et.al, showed that clinical examination and ultrasonography has a sensitivity of 8.1 and 2%, respectively. Laparoscopy helps in detecting many causes of CPP which clinical methods and ultrasonography fail to identify. This enforces the position of laparoscopy as a gold standard in evaluation of this condition.

In my study, out of 100 cases, USG was more helpful in the ovarian causes of chronic pelvic pain i.e. 38% cases followed by diagnosis of fibroid uterus

Diagnosis

It is observed that 38% of the women were diagnosed under the category Endometriosis and 14% with Adenomyosis. Hence endometriosis is the most common cause of CPP based on the study. Of the other causes diagnosed, pelvic adhesions are also one of the major one. In a study of 480 cases of endometriosis performed by Hao M *et al*., 72%, i.e., 347/480 cases had pelvic adhesions this shows a positive correlation between degree of pelvic adhesions and endometriosis.

Management

In my study, out of 100 cases, 48% had undergone surgical management which include open and laparoscopic procedures. 27% had relief with medical management. 9% were referred to other departments for further management which included orthopaedics, psychiatry and psychology.

Conclusion & Recommendations

Proper history taking and clinical examination should be done.

All required investigations such as ultrasonography, MRI pelvis if required can be advised a final diagnosis is to be made out based on the findings and treated accordingly Psychologist and physiotherapist help should be sorted out whenever required.

Limitations

Not all causes of chronic pelvic pain are curable, but treatable. Hence proper evaluation is a must. Multidisciplinary approach is required in most of the cases, which may not be available at all health care centers.

Conflict of interest: There is no conflict of interest.

Conclusion

In my study mean age of the patients was 42.5 years. The percentage of women with endometriosis was 38%, thereby endometriosis is the most common cause of chronic pelvic pain according to this study.

Women with CPP often have other associated symptoms. Most common factor was dysmenorrhea as per this study (51%). When past surgical history in the 100 women was taken into consideration, CPP was more prevalent in those who had a history of LSCS (63%) Multidisciplinary approach is helpful in most of the cases.

References

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