ORIGINAL ARTICLE

Analysis of Pain in Lower Abdomen among Non-pregnant Reproductive-age Women

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Abstract

Background: Most patients attending a gynecologist's OPD complain of abdominal pain. Diagnosing of pelvic pain in women can be challenging because many symptoms and signs are insensitive and non-specific. We conducted a study on middle-aged women excluding obstetric reasons, and analyzed the various causes of pain.

Materials and methods: A study was conducted on 200 women in the reproductive age-group (20–45 years) attending a charitable hospital's outpatient department over a period of 10 months to analyze the causes of lower abdominal pain. Before starting this study, inclusion criteria were defined all patients who were pregnant, were excluded from the study.

After primary consultation with a Gynecologist, a provisional diagnosis was made and the patients were treated accordingly. As per the nature of symptoms, the patient was later asked to consult a Surgeon. In case of urinary symptoms, patient was advised to test urine sample for 'routine, microscopy' and if required an ultrasound of the abdomen was done. Patients were asked to follow-up with the report.

Observation: The commonest cause of hypogastric and pelvic pain was found to be pelvic inflammatory disease in majority (31%) of the population. This was succeeded by *excessive bowel gas* in 20% women. About 16% had urinary tract infection (UTI) whereas 14% suffered from gastrointestinal infection. The remaining 19% included other causes. In all, 30 patients required hospital admission more than 24 hours, i.e., 15% of our study population for complete treatment.

Conclusion: A uniform definition of lower abdominal pain and standardized evaluation of participants are lacking across the literature.

Our study reflects that out of the known factors responsible for abdominal pain, a new entity as 'excessive colonic gas' emerged. Besides the pelvic inflammatory disease and UTIs which are easily and commonly diagnosed, a significant number of patients concurrently suffered from excessive bowel gas, while a few (20%) had 'gaseous distention of abdomen' as the sole cause of abdominal pain. This may be attributed to the sedentary lifestyle and non-nutritious diet which have become an integral part of routine life. Therefore, we need to revise our differentials while managing many 'non-specific' underlying causes as well as adopt a healthy lifestyle modification to decrease the recurrence.

Keywords: Bowel gas, Lower abdominal pain, Pelvic pain, Reproductive-aged women.

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Introduction

Most patients attending a Gynecologist's OPD complain of pain in abdomen. Our study was restricted to 'non-obstetric' causes; triaged according to the associated symptoms each one had. The site of pain could not be located to one particular site, by majority of patients, thereby adding on to the differentials (Fig. 1).

It's a challenge to diagnose pelvic pain clinically without certain investigations because many symptoms and signs are overlapping.[1] There is no definite protocol for evaluating chronic pelvic pain (CPP).[2] The CPP is quite a common Gynecological problem as Latthe et al. study claimed it to have a prevalence of 38 per 1,000 in reproductive-age women.[3]

Early Diagnosis is Important

- For advising investigations and treatment to relieve pain.
- To prevent complications like ovarian torsion, appendicular perforation, ureteric colic and hydronephrosis, infertility, etc.
- For follow-up and clinical prognosis.

Aim

To analyze the stage down the differential diagnosis of lower abdominal pain in women in the reproductive age-group and develop a protocol for its evaluation.

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Materials and Methods

A descriptive study was conducted on 200 women over a period of 10 months to analyze the causes of lower abdominal pain.

Two hundred women in the reproductive age-group (18–45 years) attending a charitable hospital's outpatient department with complaints of pain in lower abdomen were included in the

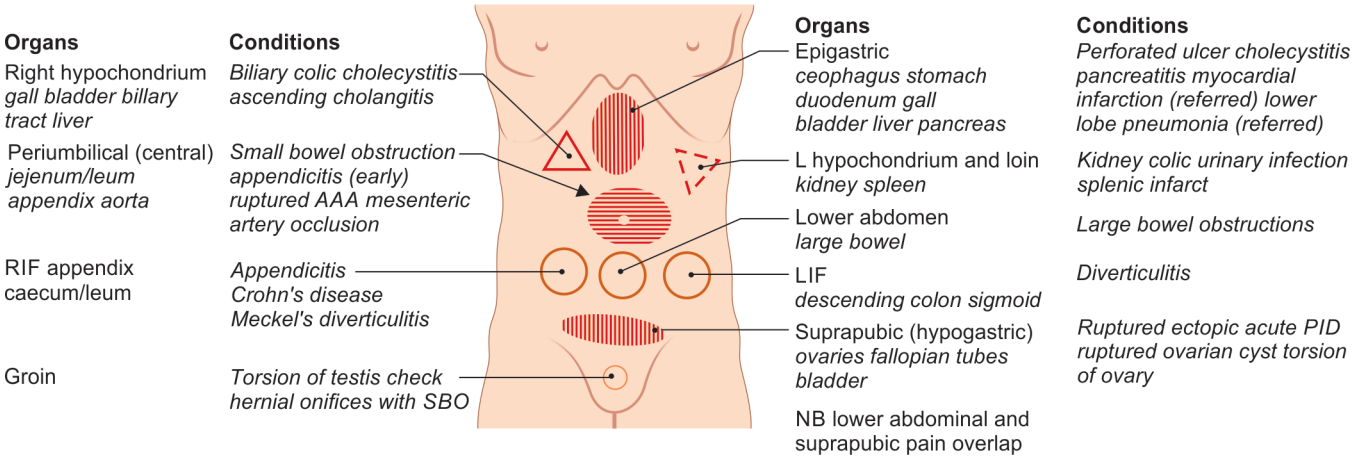


Fig. 1: Typical sites of various causes of acute abdominal pain

study. The study was conducted over a period of 10 months from February 2023 to December 2023.

Protocol followed (Inclusion Criteria)

Our approach to a patient with pelvic pain was as follows:

After a meticulous history and clinical examination, a pregnancy test was done

If negative, patients were included in the study.

Exclusion Criteria

- Patients in shock, who required immediate hospitalization (e.g., acute intestinal obstruction, rupture/torsion of ovarian cyst).
- Patients who failed to follow-up.
- Patients with somatic complaints.
- Lunates or patients unable to comprehend.
- Patients who could not afford ultrasonography from prescribed centers and, therefore, had to be referred to municipal hospitals.
- Patients who refused medication/referral/USG.
- Patients who required extra investigations like CT scan or MRI pelvis, before or after treatment for further evaluation.

All patients visited a *Gynecologist* at the index visit.

Some of the common complaints, besides lower abdominal pain, that the patients suffered were: constipation, bloating, nausea, vomiting, low grade fever, lump/swelling in lower abdomen.

Urinary symptoms included increased urination, urgency, burning, and sense of incomplete evacuation (Fig. 2). Gynecological complaints in the form of dysmenorrhea, dyspareunia, menorrhagia, metrorrhagia. Referred symptoms (radiation pain) included shoulder pain. Other general symptoms were like body ache, leg pain, and non-specific symptoms. A complete history with respect to onset, duration, and progress (OPD) was taken. Learwattanakanok et al. in their study, dated 2013, developed a classic PQRST mnemonic for valuating pain details, according to which.

- P3 – Positional, palliating, and provoking factors.
- Q – Quality.
- R3 – Region, radiation, referral.
- S – Severity.
- T3 – Temporal factors (time and mode of onset, progression, and previous episodes).[4]

This mnemonic helps to ensure a thorough history with respect to pain (location), what kind of pains (character), when and how it began (onset), its severity (intensity), and extending where: different sites of radiation, what made it worse or better, how it has changed over time, and whether they have ever had it before.[4]

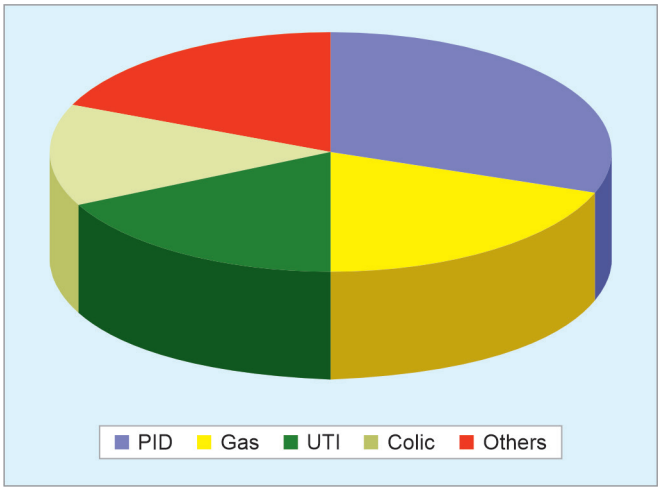


Fig. 2: Pie chart showing case-wise distribution of causes

A *surgery* reference was sought, if necessary, and other tests like ultrasonography of abdomen and/or pelvis were advised.

In case of urinary symptoms, patient was advised to test urine sample for 'routine, microscopy' and follow-up with the report (Table 1).

An ultrasonography of the pelvis coupled with abdominal scan was the single most non-invasive, time-tested priceless investigation that helped in arriving at a diagnosis.[5]

Diagnostic laparoscopy was reserved for patients who presented with acute abdomen, and required intervention. Diagnostic as well as corrective treatment in the same minimally invasive procedure was preferred over laparotomy.

However, in our study, we restricted our investigations to ultrasonography of the abdomen.

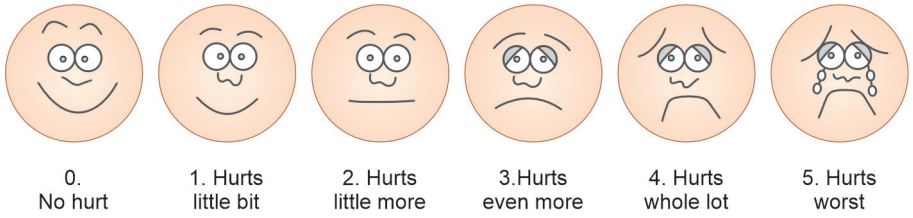
After clinical diagnosis, investigations and treatment, patients were followed up after 1 week for relief of symptoms (by at least 75%). This helped us in assessing 'subjective relief' of pain.

Table 1: Overall distribution of abdominal pain among total patients

Serial number	*Clinical diagnosis*	*Impression/Tt*	*Number of patients*	*Percentage (%)*	*Others*
1.	Pelvic inflammatory disease	PID/Antibiotics	59	29%	
2.	Excessive colonic gas	Yoga, antiflatulents	37	18.3%	
3.	Urinary tract infection	UTI/Alkalizers, antibiotics	33	16.3%	
4.	Colic (intestinal)	Enteritis/Colitis	28	14%	
5.	Acute appendicitis	Acute on chronic surgery	12	0.06%	22%
6.	Chronic pelvic pain	Somatic	11	0.05%	
7.	Ovarian cyst	Oophoritis conserved	8	0.04%	
8.	Dysmenorrhea	Spasmodic/Endometriosis, antispasmodics	8	0.04%	
9.	Adhesions from past pelvic surgeries	Injectable placentrex	3	0.015%	
10.	Ovarian hyperstimulation (OHSS)	Rest, fluids, anti-inflammatory, Cabergoline	2	0.01%	
11.	Umbilical hernia	Chronic umbilical hernia. adv. surgery	1	0.005%	

The Wong–Baker scale, developed for young patients originally, was used as a tool for objective assessment for all.[6]

Face 0 Smile indicates no hurt
Face 1 Mild hurt
Face 2 Mild to moderate hurt
Face 3 Moderate to severe hurt
Face 4 Severe hurt
Face 5 Maximum hurt: Weeping face



Observation

The analysis showed that 59 women were diagnosed to have pelvic inflammatory disease and relieved with antibiotics and anti-inflammatory drugs. About 17 patients with recurrent infection or moderate to severe degree infection responded to injectable Placentrex. In all, 12 patients in addition required indoor antibiotic management and a couple of them were treated with cervical cauterization as well, in view of chronic erosion, 37 patients complained of bloating, suspected of excessive colonic gas (on USG) were relieved with antiflatulents. Those who habitually ate outside required probiotic plus an antibiotic course against gas forming organisms and deworming against tapeworm. None of them required admission to the hospital but four patients requested for injectable analgesic to relieve pain instantly.

A total of 33 women had associated urinary complaints and were treated for urinary tract infection (UTI). This was supported by the laboratory testing of urine for routine, microscopy and were asked to do urine: culture, sensitivity in case of moderate to severe infection for selecting appropriate antibiotic therapy.

A total of four women also had renal colic, diagnosed with renal calculi on ultrasonography and needed 'flush therapy', indoor management under the treating surgeon.

A total of 28 patients presented with bowel complaints, diagnosed to have enteritis, typhlitis or colitis and were given antibiotics and/or probiotics. Few patients requested for intravenous hydration therapy and were, thence, admitted, whereas a couple of them needed more than 3 days for intravenous antibiotics due to gastritis, intolerance of drug, and/or abdominal pain.

A total of 12 patients had acute or 'acute on chronic' appendicitis of which three required surgical intervention. However, four other patients required hospitalization for indoor conservative management in view of pain and vomiting.

A total of 10 patients had ovarian cyst of which 1 had dermoid and 2 had OHSS and were managed accordingly. Three patients in all with ovarian component required admission. A total of nine women probably had an associated psychological component and chronic symptoms, treated with counseling and offered a short-term course of antidepressants.

A total of eight women had dysmenorrhea and were treated with antispasmodics of which, four patients were known cases of endometriosis with chocolate cysts.

Three women had past history of pelvic surgeries and were treated for pelvic adhesions. Only one patient was posted for laparoscopic adhesiolysis.

Two women undergoing fertility treatment had ovarian hyper stimulation syndrome and one patient had umbilical hernia and planned for surgical option in view of chronicity.

Pie chart showing case-wise distribution of causes:

In all 30 patients required admission more than 24 hours, i.e., 15% of our study population for complete treatment.

Some causes of referred pain were spontaneously relieved after treatment of the underlying cause. The neural pathways give rise to predictable patterns of referred pain and radiation. Some cases of 'referred pain' settled after treatment of original condition, e.g., ovarian hyperstimulation had caused shoulder tip pain besides abdominal pain. This was the classical example of Kehr's sign where diaphragmatic irritation, due to moderate free fluid in Pouch of Douglas irritated the phrenic nerve and manifested as shoulder pain. Predicting factors for OHSS include low age, low weight, endocrine evaluations, and previous episodes of hyperstimualtion.[7]

The pain in case of Pancreatitis is referred to back in the left infrascapular region. Similarly, another example of referred pain is in cases of renal colic where the pain is referred to front of abdomen from the lumbar region.

Discussion

A careful history focusing on pain characteristics viz. duration, location, radiation as well as a complete clinical examination helps in limiting to specific investigations and narrowing down differential diagnosis.

Many patients with pelvic inflammatory disease and appendicitis present with classic signs and symptoms. Some cases are confusing and lead to misdiagnosis as patients present with vague abdominal pain more so in the umbilical and epigastric region, sometimes due to guarding, thereby diverting from the classical presentation.

It was interesting to learn that "*patient characteristics that contribute to misdiagnosis are female gender, reproductive age, stage of menstrual cycle, and sexual history*" according to the study by Dahlberg et al.[8]

Although, CPP was less associated with multiple non-pain somatic symptoms in women of reproductive age.[9] We concluded that the definitive diagnosis of the condition and management may be delayed while we try to exclude other differentials by trying antacids or analgesics due to confounding factors.[7]

About 62% of patients were rightly diagnosed by clinical examination alone, yet 75% underwent an ultrasonography for confirming and evaluating the cause. Ultrasound is a safe, cost-effective, medicolegally important and easily available investigation of profound importance. Urine routine microscopy was another investigation, succeeded by excessive bowel gas in 20% women whereas UTI was next commonest 16%.

Approximately, 14% suffered from gastrointestinal infection with history of eating outside food followed by nausea, vomiting, and/or cramps and defecation problems.

In the patients, with diagnosis of excessive colonic gas, all the other investigations were normal except ultrasound features of gas artefacts/excessive colonic gas noted. This cause of chronic abdominal pain is probably due to changes in food habits, irregular daily schedule, skipping meals, excess intake of junk food, and lack of exercise. This reflects that sedentary lifestyle and non-nutritious diet have become an integral part and require lifestyle modification and change.

From our study results, we realized that the commonest cause of hypogastric and pelvic pain was still pelvic inflammatory disease in majority (31%) of the population; of routine life and thereby we need to revise our differentials while managing many "non-specific" underlying causes as well as adopt a healthy lifestyle modification to decrease the recurrence.

Conclusion

This reflects that out of the known factors responsible for abdominal pain, a new entity as 'excessive colonic gas' emerged. Besides the pelvic inflammatory disease and UTIs which are easily and commonly diagnosed, a significant number of patients concurrently suffered from excessive bowel gas, while a few (20%) had 'gaseous distention of abdomen' as the sole cause of abdominal pain. This may be attributed to the sedentary lifestyle and non-nutritious diet which have become an integral part of routine life. Therefore, we need to revise our differentials while managing many 'non-specific' underlying causes as well as adopt a healthy lifestyle modification to decrease the recurrence.

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