Original Research Article

The Utility of CT Scan in Chronic Abdominal Pain

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Abstract

Introduction: Chronic abdominal pain (CAP) is a common problem encountered in clinical practice globally and even in India. Often it has a nonspecific clinical presentation and vague symptomatology and the exact cause remains elusive despite of extensive evaluation. **Aim of the study:** To assess the utility of CT scan findings in adults with chronic abdominal pain**Materials and Methods:** This was a prospective study carried out in the department of Radiodiagnosis over a period of seven months. All the out-patient and admitted cases of chronic abdominal pain, who were referred for CT scan were included in the study and the etiology was looked for.**Results:** There were a total of 62 patients. The patient age ranged from 20 years to 78 years. There were 34 males and 28 females and the male to female ratio was 1.2:1. Commonly encountered cases were of abdominal tuberculosis, gall stones, primary or metastatic malignancy of the viscera, recurrent appendicitis, pelvic inflammatory disease, etc. The CT scan was inconclusive in 9.6% cases. **Conclusion:** Chronic abdominal pain has varied presentations and varied etiologies.Careful review of clinical history and prior testing is essential to avoid unnecessary repetition of investigations.CT scan findings are helpful in some of the cases but are not necessarily the first choice of investigation. Other radiological modalities are aloto be used as per the most likely suspected etiology. Inspite of CT scan testing, there will be some cases which remain unresolved etiology-wise.

Keywords: Chronic abdominal pain, CT scan in chronic abdominal pain, causes of chronic abdominal pain

Introduction

Chronic abdominal pain (CAP) is a common problem encountered in clinical practice globally and even in India. Often it has a nonspecific clinical presentation and vague symptomatology and the exact cause remains elusive despite of extensive evaluation.It causes great anxiety and concern in the patient and also increases the overall economic burden of the patient and the society due to the extensive work-up it involves[1]. CAP is a diagnostic challenge to the physicians and surgeons as it as varied clinical presentation.CAP is also defined as continuous or intermittent abdominal discomfort lasting for at least six months. The most common etiologies are of the gastrointestinal tract, the biliary tract or pancreas, or they can also arise from gynecological or genitourinary problems, abdominal wall pain, costochondritis, etc. Sometimes it is part of a functional syndrome[2].For chronic abdominal pain diagnostic imaging is usually not indicated. Most often as it is an undifferentiated abdominal pain where a CT scan is not mush helpful. If at all imaging is necessary then the appropriate modality of testing has to be chosen. In particular there are some flag symptoms or alarm symptoms such as presence of anaemia, malena, sleeplessness at night due to gastrointestinal symptoms, weight loss, etc, which need investigation. The selection of modality depends on the symptoms.The test request forms should contain all relevant clinical information and the provisional diagnosis so as to the radiologist to determine an appropriate imaging protocol[2].CT scan often does not yield any valuable information in such cases. On the contrary it may detect 'incidentalomas' in 5% cases leading to further unnecessary investigations. It also exposes the patient to ionising radiation. Especially repeated CT scans in this group of patients may have risk of radiation exposure[2].

Aim of the study -To assess the utility of CT scan findings in adults with chronic abdominal pain

Materials and Methods

This was a prospective study carried out in the department of Radiodiagnosis at Osmania Medical College, Hyderabad over a period of seven months from July 2019 to January 2020 . All the out-patient and admitted cases of chronic abdominal pain, from departments of General Medicine, General Surgery and Obstetrics and Gynecology, who were referred to our department for CT scan were included in the study. Detailed history with clinical features, examination findings and provisional diagnosis were noted. The CT scans were done and an attempt was made to pinpoint the cause for the chronic abdominal pain.

Inclusion criteria: Adult patients age ranging from 18 to 80 years were included.Both genders Patients having undiagnosed chronic abdominal pain for more than 6 months duration were included.

Exclusion criteria: Patients less than 18 years were excludedPatients with recent history of any abdominal surgery of within six months were excluded.Patients with history of acute pain in abdomen were excluded.Patients with history of blunt trauma or any trauma to abdomen were excluded

Cases of ascites

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Equipment used: CT machine Hitachi (128 slices) was used. Water soluble and nonionic (Omnipaque) was used and was given at 300 mg/ml through intravenous injection. The procedure was well explained to the patients prior to the procedure.

Observations and Results

There were a total of 62 patients were participated in study.

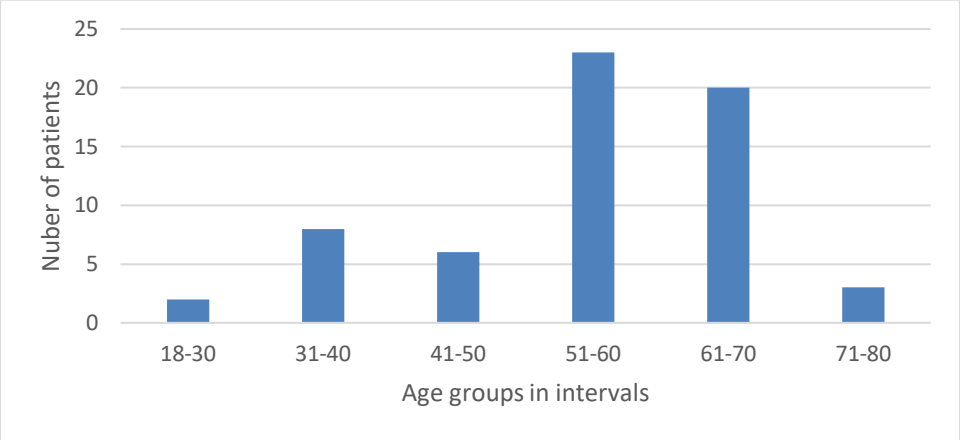

Fig 1: Age-wise distribution of the cases

The patient age ranged from 20 years to 78 years.There were 34 males and 28 females and the male to female ratio was 1.2:1.

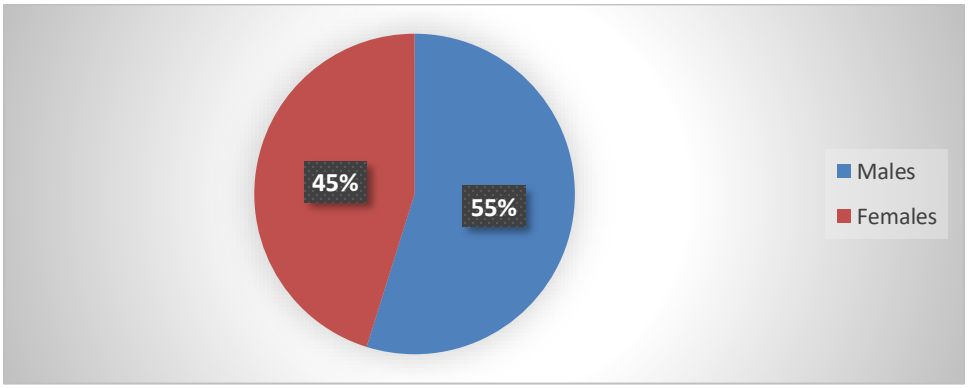

Fig 2: Gender-wise distribution of the cases

There was a slight male predominance with 34 male patients and 28 female patients.

Table 1: Clinical presentation that correlated with CT findings

Provisional clinical diagnosis	No. of cases	Percent (%)
Abdominal tuberculosis	6	9.6%
Acid peptic disease	7	11.2%
Malignancy of the viscera primary or secondary	8	12.9%
Pelvic inflammatory disease	5	8%
Hernias	2	3.2%
Gall stones	8	12.9%
Inflammatory bowel disease	3	4.8%
Recurrent appendicits	3	4.8%
Diverticulosis/Diverticulitis	2	3.2%
Cirrhosis	3	4.8%
Endometriosis	3	4.8%
Chronic pancreatitis	2	3.2%
Miscellaneous	4	6.4%
Unknown	6	9.6%

Among the four miscellaneous cases, one case was of cord compression with pain radiating forward to the abdomen, one was of abdominal lymphangioma, one was of mucocele appendix and the last case was of paraduodenal hernia giving rise to the chronic abdominal pain. There were six cases in which CT scan findings could not give any diagnosis. The eight cases of abdominal tuberculosis also underwent diagnostic laparoscopy and tissue biopsies from omentum were taken for histopathology.

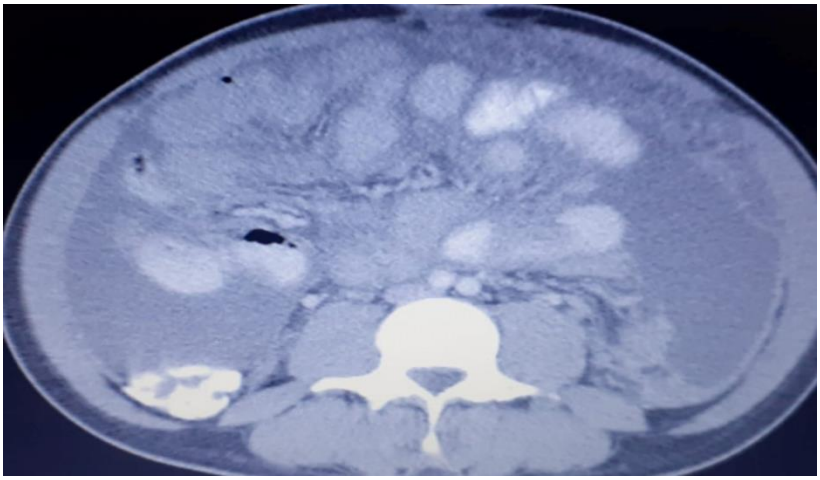

Fig 3: Contrast enhanced CT scan shows dense ascites with thickened peritoneum and omental cake-abdominal tuberculosis

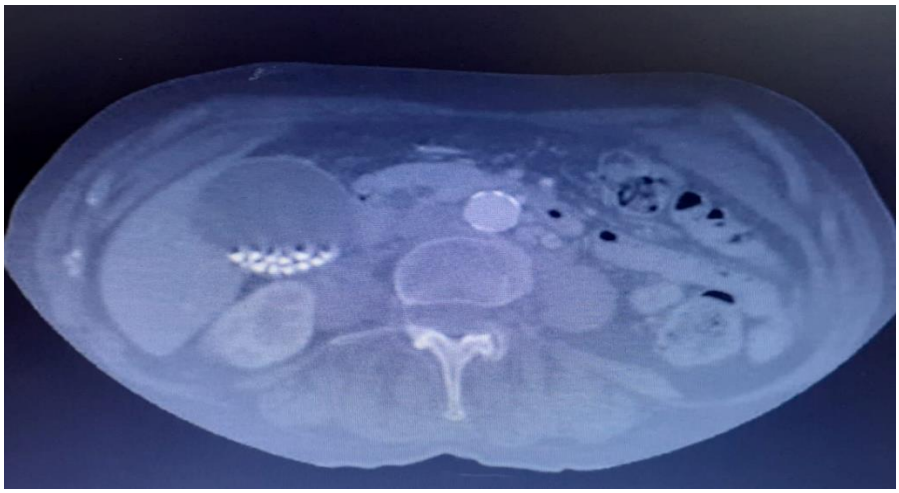

Fig 4: Contrast enhanced CT scan shows Cholelithiasis

Discussion

Chronic abdominal pain is continuous or recurrent abdominal pain or discomfort defined as three or more episodes of abdominal pain that are sufficiently severe to hinder daily activities and occur in a period of three consecutive months[3].Intermittent abdominal pain episodes may be referred to as recurrent abdominal pain (RAP). Chronic abdominal pain (CAP) usually occurs after five years of age. CAP is more common in women and almost 2% of adult population may have CAP for which gastrointestinal, dyspepsia or nonulcer causes are contributory. Most of these patients of CAP usually give a history of extensive prior medical evaluation which is often inconclusive[4].There are various advantages and disadvantages to each testing method of Ultrasound, CT and MRI. Each modality has its own application and their roles are not interchangeable. The choice of imaging should be based on the following; Age, Gender, Symptomatology and provisional clinical diagnosis, Availability of imaging modalities, Cost of imaging modalities, Radiation hazard (particularly in children and / child bearing age group / pregnant mothers but every body), Whether looking for a common or an uncommon cause[5].CT scan is useful in characterization and exact localization of lesions.It is used in staging malignancies, to detect small renal / ureteric calculi and also is the investigation of choice in pancreatic pathology.In the present study, most of the cases (69.2%) were seen in the sisth and seventh decades ie, older population. Abdominal computed tomography (CT) is in vogue for the past twenty years. Abdominal CT scanning is mainly used in the evaluation of trauma victims for visceral injury[6] and in the evaluation of acute abdominal pain, for evaluation of renal calculi[7], acute appendicitis[8]and complex abdominal pathology. It is also the gold standard in identifying abdominal injury in children [9,10].Routine complete blood count (CBC), urinalysis, and selected tests for suspected disease are important. Urine or blood toxicology is important for drug detoxification, as well as opioid therapy.In our

study, there were 6 (9.6%) cases of abdominal tuberculosis that were confirmed later by laparoscopy. In a study by Jain R et al[1]they studied 250 cases of chronic abdominal pain with laparoscopy being done in 212 patients. In their study 123 (58%) cases were confirmed on histopathology as tuberculosis. TB can affect the peritoneal cavity, mesentery, and omentum. It can be of wet type having ascites or pockets of loculated fluid; or dry type with bulky mesenteric thickening and lymphadenopathy; or it can also have a mass formation due to omental thickening.In our study there was one unusual presentation of cord compression presenting as chronic abdominal pain. Park et al[10] reported an unusual case of chronic recurrent abdominal pain that lasted for two years without definite neurologic deficits in a patient, who had a thoracic spinal cord tumor which turned out to be a Schwannoma on histopathology.Papadakos et al[11] reported a case of a 52 year old woman, who had intermittent abdominal pain for which she was initially investigated by the general surgeons and urologists. Later she was diagnosed on abdominal CT scan to have a calcified prolapsed thoracic disc. The incidence of thoracic disc prolapse is reported between 0.15% and 4% of all intervertebral disc prolapses. As it is rare, may times this pain is atttributed to other systemis pain notably, from the GIT, cardiac, pulmonary or genitourinary systems. One of our cases was of a mucocele of appendix that was surgically managed. Murliswar Rao et al[13] reported a case of a 39 year old male with giant mucocele of appendix who presented as intermittent abdominal pain. Appendicular mucoceles are rare. Mucocele is a cystic mass as a result of dilated appendiceal lumen caused by abnormal accumulation of mucus, regardless of its underlying cause ie it could be simple accumulation, or a benign mucinous cystadenoma or a malignant cystadenocarcinoma. The clinical presentation is usually non-specific with 50% of cases being an incidental finding at surgery.Symptoms could be an indeterminate abdominal pain or chronic or intermittent abdominal colicky pain.One more case in the present study was of a left paraduodenal hernia. The typical CT findingof a left paraduodenal hernia shows an encapsulated cluster of dilated bowel loops with a sac-like appearance in the left upper quadrant at the level of the anterior para-renal space[14] Paraduodenal hernias are the most common type of internal hernia, accounting for approximately 53% of all cases[15].There are two main types, left and right paraduodenal hernias and the left are more common accounting for almost 75% of the cases[16].In our study there were two cases of chronic pancreatitis. Chronic calcific pancreatitis is a result of chronic inflammation of the pancreatic parenchyma resultingin irreversible damage. There are two types of chronic calcific pancreatitis (CCP) called as Alcoholic calcific pancreatitis and Tropical calcific pancreatitis. The former is naturally related to the consumption of alcohol whereas the latter is a special form of chronic pancreatitis that tends to calcify and is associated with pancreatic lithiasis[17]. The main CT scan findings in alcoholic chronic calcific pancreatitis are small and speckled calculi with mild dilatation of the ducts. Our findings were similar to those observed by Jacob V et al[16].In the present study we had 8% cases of pelvic inflammatory diseases presenting as chronic abdominal pain. Such patients are very difficult to diagnose and treat. They often visit many physicians and undergo numerous tests for evaluation of their symptoms. Some of them unfortunately even undeergo unnecessary surgical procedures without pain relief[17].

Conclusion

Chronic abdominal pain has varied presentations and varied etiologies. Careful review of clinical history and prior testing is essential to avoid unnecessary repetition of investigations.CT scan findings are helpful in some of the cases but are not necessarily the first choice of investigation. Other radiological modalities are alo to be used as per the most likely suspected etiology. Inspite of CT scan testing, there will be some cases which remain unresolved etiology-wise.

References

1. Jain R, Dosi R. Diagnosis of abdominal tuberculosis in chronic abdominal pain: Laparoscopy as an effective diagnostic tool. Journal of evolution of medical and dental sciences 2013;2(16):2756-2762
2. Mendelson R. Imaging for chronic abdominal pain in adults. Aust Prescr. 2015;38(2):49-54
3. Apley J, Naish J. Recurrent abdominal pains; a field survey of 1000 school children. Arch Dis Child 1958;33(168):165-170.
4. Greenberger NJ. Chronic abdominal pain and recurrent abdominal pain. Merck Manuals
5. SLCOR National Guidelines/ Imaging of Chronic Abdominal Pain.
6. Sudakoff GS, Yucel EK, Rosen MP, Francis IR, Baum RA, Foley WD, et al. ACR Appropriateness Criteria® blunt abdominal trauma. acr.org. Available at http://www.acr.org/Search?q=abdominal%20ct%20trauma.
7. Coursey CA, Casalino DD, Remer EM, Arellano RS, Bishoff JT, Dighe M, et al. Appropriateness Criteria® acute onset flank pain -- suspicion of stone disease. acr.org. Available at http://acsearch.acr.org.
8. Rosen MP, Ding A, Blake MA, Baker ME, Cash BD, Fidler JL, et al. ACR Appropriateness Criteria® right lower quadrant pain--suspected appendicitis. J Am Coll Radiol2011;8(11):749-755. .
9. Lynch T. Pediatric Abdominal Trauma. Curr Pediatr Rev. 2017:1
10. Park JE, Chung ME, Choi HS. Inexplicable Abdominal Pain due to Thoracic Spinal Cord Tumor. Annal Rahab Med 2014;38(2):273-276
11. Papadakos N, Georges H, Sibtain N, Tolias CM. Thoracic Disc Prolapse Presenting with Abdominal Pain: Case Report and Review of the Literature. Ann R Coll Surg Engl. 2009;91(5):W4–W6.
12. Muraliswar Rao J, Surabi Kartik. Giant appendicular mucocele-a case report. Journal of evolution of medical and dental sciences 2013;2(32):6119-6123.
13. Doishita S, Takeshita T, Uchima Y. Internal Hernias in the Era of Multidetector CT: Correlation of Imaging and Surgical Findings. Radiographics 2016; 36:88-106
14. Ghahremani GG. Abdominal and pelvic hernias. In: Gore RM, Levine MS (eds) Textbook of gastrointestinal radiology, 2nd edn. Saunders, Philadelphia, pp 1993-2009
15. Blachar A, Federle MP. Internal hernia: an increasingly common cause of small bowel obstruction. Semin Ultrasound CT MR 2002;23:174-18
16. Jacob V, Krishnakumar AS. CT evaluation of chronic alcoholic pancreatitis versus tropical pancreatitis. JEMDS 2014;3(3):698-706
17. Gober J, Howell M, Shah SM, Sackheim KA. Chronic Pelvic and Abdominal Pain. In: Sackheim K. (eds) Pain Management and Palliative Care. 2015, Springer, New York, NY.

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