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Original Research Article

Clinico-pathological correlation of abdominal lymphadenopathy

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ABSTRACT

Background: This study "clinico-pathological correlation of abdominal lymphadenopathy" intended to know the various etiological causes behind the abdominal lymphadenopathy and different modes of presentation which can help in treatment and prognosis in our setup which helps in better management of these cases thus helping to improve prognosis.
Methods: The" Clinico-Pathological Correlation of Abdominal Lymphadenopathy is a clinical study of 250 consecutive cases of abdominal Lymphadenopathy which were found during intraoperative laparotomy in Hamidia Hospital (Gandhi Medical College), Bhopal. This is observational study will be carried out in the Department of Surgery, Gandhi Medical College. Total 250 consecutive cases will be included in this study having per-operative findings of lymphadenopathy, where laparotomy will be done for various regions. Prior to surgery thorough history will be taken and meticulous physical examination will be performed. Necessary laboratory and imaging studies shall do to establish the diagnosis.
Results: Tuberculosis is one of the common causes of Abdomen lymphadenopathy. Age incidence more in males and in second and third decade of life is more common. Abdominal pain, loss of weight and appetite with bowel disturbances are the common clinical manifestation. It is obvious from this study that tuberculosis is a problem in our country. Regarding the abdominal tuberculosis, the diagnostic problem persists for those patients where pulmonary tuberculosis is not obvious. Most tubercular patients present with perforation peritonitis.
Conclusions: This study support fact that abdominal lymphadenopathy is important indicator of underlying cause of pathogenesis from which we reach the diagnosis. In present study in 10% cases only lymph nodes are positive for tuberculosis without tissue diagnosis, which can be treated to prevent the further complications.

Keywords: Abdomen, Carcinoma, Lymphadenopathy, Laprotomy, Tuberculosis

INTRODUCTION

Abdominal lymphadenopathies are not uncommon in our population that we encounter during laparotomy done for various reasons.[1] Abdominal lymphadenopathy is secondary to intra-abdominal or extra-abdominal inflammatory and neoplastic conditions. But surprisingly many a time presenting features obscure the diagnosis. Random sampling during laparotomy reveals tuberculosis in good number of cases. In India having a high density of population with low health education, poor hygiene and poor health status, lot of people suffers from tuberculosis.[2] Abdominal lymphadenopathies are not uncommon in our population that we encounter during laparotomy done for various reasons.

Many times, patients present with chronic abdominal pain, even features of intestinal obstruction are presented where mesenteric tuberculous lymphadenitis remains at the background.[3] So this study was done with an aim to see the clinico-pathological correlation of incidental findings of abdominal lymphadenopathy found during

laparotomy which was done for any other causes. In most of these cases, diagnosis was late and thought to be due to irregular treatment and lack of diagnostic facilities.

Tuberculosis is an important socio-economic problem in our country and it is closely linked with health education, health consciousness, and preventive awareness.[4] The symptom of abdominal tuberculosis is generally vague and nonspecific. It may mimic any intra-abdominal disease and can challenge the diagnostic skills. Tuberculosis of the lleocaecal region ranks first in incidence among intestinal /abdominal tuberculosis.[2] Abdominal tuberculosis can affect the gastro intestinal tuberculosis.[5] Abdominal tuberculosis can affect the gastro intestinal tract; peritoneum lymph nodes or the solid viscera including spleen and occasionally pancreas.

Some patient will require immediate surgical intervention, whereas other will improve with conservative treatment. Mortality rate has come down to 6% from 20-50% after introduction of anti-tubercular chemotherapy and MDT. Surgical management of abdominal tuberculosis (intestinal tuberculosis) has changed considerably from bypass operations, hemicolectomy to conservative resection and stricturoplasty.[6] The aim of surgery in case of intestinal tuberculosis is to overcome deleterious effect of the disease like tissue disorganization, obstruction and perforation.[7]

Abdominal lymphnodes are enlarged then specimen of abdominal lymph node sends for histopathological examination then we plan further management of patient according to histopathology report if the report positive for tuberculosis then we start Antitubercular treatment post operatively to prevent further consequences of abdominal tuberculosis and if any pathology like lymphoma and metastasis in lymph node then we plan for the further treatment accordingly.[8]

General objectives

- To find out distribution of diseases and clinic pathological Correlation

Specific objectives

- To Find Out the frequency of per operative incidental findings of Lymphadenopathy.
- To know the underlying pathology of Abdominal Lymphadenopathy.

METHODS

The" Clinico-Pathological Correlation of Abdominal Lymphadenopathy is a clinical study of 250 consecutive cases of abdominal Lymphadenopathy which were found during intraoperative laparotomy in Hamidia Hospital (Gandhi Medical College), Bhopal during 2013 to 2015.

Inclusion criteria

This study includes selection of patients with consent of the patient for the surgery as well as the study. All patient admitted and planned for emergency and routine exploratory laparotomy for various regions having significant lymphadenopathy. Lymphadenopathy has been defined when the lymph node size is greater than 6,10- and 15-min short axis for retro-caval, abdominal and pelvic nodes, respectively

Exclusion criteria

Patients not giving consent for study age less than 12 year.

Methodology

This is observational study will be carried out in the Department of Surgery, Gandhi Medical College, during the period 2013 to 2015 Total 250 consecutive cases will be included in this study having per-operative findings of lymphadenopathy, where laparotomy will be done for various regions. Prior to surgery thorough history will be taken and meticulous physical examination will be performed.[9] Necessary laboratory and imaging studies shall do to establish the diagnosis.

Finally, the patients were selected for laparotomy. All the patients have their laparotomy under general anesthesia. After laparotomy, abdomen will be meticulously examined, suspected lesions will be identified. Draining lymph nodes will be examined in all the cases.[10]

Macroscopic examination of the lymph nodes included size, consistency, colour, adhesion with other structures and appearances of cut surfaces.[11] The groups of lymph nodes involved will be noted in the operation note. Biopsy of the lymph nodes will be taken from the suspected groups.[12] In most of the resected specimen will be sent for histopathology with preservative in pathology department for histopathological examination of the specimen done in following steps.

Tissue fixation

Slide preparation begins with fixation of tissue specimen. This is a crucial step in tissue preparation, and its purpose is to prevent tissue autolysis and putrefaction. For best results, your biological tissue samples should be transferred into fixative immediately after collection.

Although there are many types of fixative, most specimens are fixed in 10% neutral buffered formalin. The optimum formalin-to-specimen volume ratio should be at least 10:1 (e.g., 10ml of formalin per 1ml of tissue). This will allow most tissues to become adequately fixed within 24-48 hours. Formalin containers should be capped and leak-proof, and labelled correctly.[13,14]

Specimen transfer to cassettes

After fixation, specimens are trimmed using a scalpel to enable them to fit into an appropriately labelled tissue cassette. Specimens should not be so big that they fill the cassette - they are trimmed so as not to touch the edges. Additionally, they must not be too thick (ideally, they should be less than 4mm), otherwise they risk being "waffled" when the cassette lid is closed. The filled tissue cassettes are then stored in formalin until processing begins.[15]

Tissue processing

Processing tissues into thin microscopic sections is usually done using a paraffin block, as follows:

Dehydration is the first step, which involves immersing your specimen in increasing concentrations of alcohol to remove the water and formalin from the tissue.(16) Clearing is the next step, in which an organic solvent such as xylene is used to remove the alcohol and allow infiltration with paraffin wax .Embedding is the final step, where specimens are infiltrated with the embedding agent -usually paraffin wax.[17] The tissue becomes surrounded by a large block of molten paraffin wax , creating what is now referred to as the "block". Once the block solidifies, it provides a support matrix that allow s very thin sectioning.[18]

Sectioning[19]

Tissue specimen is now ready to be cut into sections that can be placed on a slide. Wax is removed from the surface of the block to ex pose the tissue. Blocks are chilled on a refrigerated plate or ice tray for 10 minutes before sectioning. A microtome is used to slice extremely thin tissue sections off the block in the form of a ribbon. The microtome can be pre-set to cut at different thicknesses, but most tissues are cut at around 5 pm. Check out this article for more ways to slice tissue sections. Once cut, the tissue ribbons are carefully transferred to a w arm water bath.

Here they are allowed to float on the surface and can then be scooped up onto a slide placed under the water level. Charged slides work best for this process - they improve tissue adhesion to the glass and help to reduce the chance of sections washing off the slide during staining. Slides should be clearly labelled, and then allowed to dry upright at 37 'C for a few hours to gently melt the excess paraffin wax, leaving the tissue section intact.

Staining

Most cells are transparent and appear almost colourless when unstained. Histochemical stains (typically hematoxylin and eosin) are therefore used to provide contrast to tissue sections, making tissue structures more visible and easier to evaluate. Following staining, a cover slip is mounted over the tissue specimen on the slide, using optical grade glue, to help protect the specimen. Examination of slides done in microscopes and then categorised the slide in categories.[20]

RESULTS

In present study, "Clinico-Pathological Correlation of Abdominal Lymphadenopathy" conducted on 250 consecutive cases of abdominal lymphadenopathy in Department of General Surgery, Hamidia Hospital, Bhopal, undergoing exploratory laparotomy and biopsy. The following observations were made: Table 1 show age distribution most of the pt. From age of 20-30 years approx. 43.2%.

Table 1: Age wise distribution.

Age Group	No. of Patients	%
10-20	52	20.8
20-30	108	43.2
30-40	62	24.8
40-50	15	06.0
Above 50	13	05.2
Total	250	100.00

Table 2 shows that of the 250 cases studied, (66.4%) cases were male and remaining (33.6%) cases were females. Statistically unequal level of incidence was observed in men compared to women. The ratio of male to female was found to be 1:1.97.

Table 2: Sex distribution of cases.

Category	Number	%
Female	84	33.6
Male	166	66.4

Table 3 showing distribution of patients by symptoms. It is evident that 74% of the Patient had pain as a major symptom and revealed a highly significant difference between the occurrence of pain and non-occurrence of pain.

Table 3: Distribution of patients by symptoms.

Symptoms	Number	%
I Pain	185	74
Fever	105	42
Vomiting	110	44
Wight loss	75	30
Bowel disturbances	100	40
Mass/abdomen	30	12
Distension of abdomen	155	62

In the case of fever, vomiting and distension of abdomen about 42% of the Patient had the symptoms, and remaining 58% did not have such symptoms. It is

revealed that non- significant difference between the incidence of these symptoms.

Table 4: Distribution of patients by signs.

Signs	Number	%
Tenderness	175	70
Distension	155	62
Ascites	45	18
Lump abdomen	25	10
Rigidity	135	54
Visible peristalsis	40	16

Weight loss and bowel disturbances were observed in 42 cases (30%) indicating that these are predominating factors. Mass abdomen as a symptom was found in significantly lesser number of patients (12%). Distension of abdomen in 62%. Bowel disturbances in 12% of cases.

Table 5: Distribution of patients by histopathological findings of lymph nodes.

Final diagnosis	No.	%
Tuberculosis	95	38
NSL (Non-specific lymphadenitis)	142	56.8
Secondary to metastasis	008	03.2
Lymphoma	005	02.0

Table 4 showing sign of distribution. It is evident that 70% of the Patient had abdominal tenderness as a major sign and revealed a highly significant difference between the presence of abdominal tenderness and absence of abdominal tenderness.

Even in the case of distension of abdomen, 62% of the Patients manifested, and revealed a significant difference again. However, in the case of ascites only 18% of the Patient had the symptoms and remaining did not have such symptoms. Lump abdomen (10%), visible peristalsis (16%) and rigidity (54%) as signs occurred in cases. In all the signs. It revealed significant values indicating that all these signs were present in a significantly lesser number of cases.

Table 5 showing distribution of patients by histopathological findings most significant finding in tuberculosis 52% of cases and 42.8% cases showing nonspecific lymphadenitis. Tuberculosis group patient many having no signs of tuberculosis intraoperatively but lymph nodes positive for tuberculosis on histopathology.

Table 6 distribution of tubercular cases. Cases in this study most commonly tuberculosis present with perforation in 46% of cases in stricture having found in 10% of cases. In 2% cases stricture present in jejunum and in 8% cases present in ileum. In some cases, multiple strictures present in both segments and in some cases, it is associated with perforations.

Table 6: Distribution of tubercular cases.

Symptoms	Number	%
Perforation	115	46
Stricture (jejunum)	05	02
Stricture (ileum)	20	08
Plastered (adhesions)	30	12
Hypertrophic IC Junction	20	08
Ascitic form	45	18
Others	50	20

Table 7: Tuberculosis distribution of cases on the basis histopathological diagnosis.

	%	No. of cases
Lymph node and tissue diagnosis both	28	70
Lymph node only	10	25
Tissue diagnosis only	14	35
Total	52	130

Table 7 tuberculosis distribution of cases on the basis histopathological diagnosis. In this study total 52% cases in 250 patients are positive for tuberculosis, in 28% both lymph node and tissue diagnosis both are positive, in 14% cases only tissue diagnosis like tubercles in mesentery perforation margin, stricture segment, ileocecal part positive, in 10% cases only lymph x nodes positive.

DISCUSSION

The present study " Clinico-Pathological Correlation of Abdominal Lymphadenopathy " conducted on 250 consecutive cases of acute and chronic abdominal conditions which having abdominal lymphadenopathy in Hamidia Hospital, Bhopal from 2013 to 2015 in Department of General Surgery, Gandhi Medical College, Bhopal.

Table 8: Comparison of age wise distribution.

Age (years)	Mostanzid study	Present study
0-10	07 (10%)	0
10-20	09 (12.8%)	52 (20.8%)
20-30	28.5 (28.5%)	108 (43.2%)
30-40	18 (25.7%)	62 (24.8%)
40-50	07 (10%)	15 (06%)
Above 50	09 (12.8%)	13 (05.2%)
Total	70 (100%)	250 (100%)

In this study, both acute and chronic diseases were considered in reference to abdominal pain. The age group in this study is from 10 years to 84 years. The Male and Female ratio was found to be 166:84 i.e. Male are having higher incidence of abdominal pathological problems due to tuberculosis. Similarly, the patient's

presentation was pain, fever, vomiting, distension of abdomen and mass in abdomen.

Table 9: Comparison of symptom distribution.

	Mostanzid study	Present study
Pain in abdomen	53	185
Fever	14	105
Vomiting	15	110
Weight loss	22	75
Mass in abdomen	11	100

The incidence of sign in the patients were abdominal tenderness, distension of abdomen, ascitis, lump in abdomen, visible peristalsis and guarding and rigidity of abdomen.

After routine investigations, these 250 cases were subjected to exploratory laparotomy in Hamidia Hospital, Bhopal and the intraoperative findings were found to be abdomen lymphadenopathy associated with perforation, strictures, gross amount of pyoperitonium, intrabowel adhesions, plastic abdomen, inflamed bowel. In the present study, the observations were compared with previous studies which are as follow.

Table 10: Comparison of histopathological findings.

	Mostanzid study	Present study
Tuberculosis	34%	38%
Nsl	26%	53.8%
Secondary to metastasis	24%	3.2%
Lymphoma	4%	2.0%

In mostanzid study lymphadenopathy is most commonly observed in age group of 20-30yrs (28.5%) in present study this age group is quite significant in 43.2 % which is also the most common age group in tubercular patients. We exclude paediatric patient 0 to 12 yrs patients from present study. Next most common study age group is 30-40 yrs 25.7% in mostanzid study.in present study percentage of this age group is 24.8%. other age groups 10-20 ,41-50 and above 50 yrs. The percentage of cases is 12.8%,10%,12-8% in mostanzid study, in present study this percentage of cases 20.8%,6%, and 5.2%.[21]

Age distribution in Dhaka series ranges 11-40 years, mean age 26 years. Most of the cases (47%) were at the age of 21-30 years. Several studies in our country on abdominal tuberculosis showed nearly similar results.[22] A Rabbi's (1990) series, mean age 29 years and maximum incidence was at 3rd decade (39.39%). While in Roufs series (1982) at 3rd decade (62.96%) and in Rabiul's series (1984) 52.63% were affected with tuberculosis.

In previous studies male to female ratio which includes 70 patients in male to female ratio is 39:31 in Mostanzid study.in present study which includes 250 patients the male to female ratio is 84:166 Females predominantly attacked in this series with the radio of 1.4:1. In Rabbi's series female male ratio was 1.2:1, in Roufs series male female ratio was 1.7:1. it may be due increase in literacy rate in female, female is not brought to hospital.[23]

Faridpur study most common symptom is pain abdomen, it is present in 53 patients (total 70 patients , 75.7% cases)and in present study it is present in 185 patients (total patients 250 ,74% cases) other symptoms include fever 42% .vomiting 44% .lump 12%,altered bowel habits 40%, weight Ioss30%, presents in present study, in Mostanzid study it is present in 20%,22%,16%16%32% frequencies.[24]

Common cause of abdominal lymphadenopathy was nonspecific lymphadenitis 56.8% of cases. Histopathologically most of them were only mild follicular hyperplasia. It is as common as tuberculous variety.[25] Most of them were provisionally diagnosed as acute appendicitis it is common presentation after perforation peritonitis. In our series, we did not correlate the nonspecific lymphadenitis with bacteriological or serological examination, in Mostanzid series the percentages of patients are 26%.[26]

Present study is biased because 14% of cases which are positive in tissue diagnosis as tuberculosis but lymphadenopathy sample of that 14%cases in histopathology nonspecific lymphadenitis is found, so from these studies only 42.8% cases are positive in nonspecific bacterial infection.

It is obvious from this study that tuberculosis is a problem in our country. Regarding the abdominal tuberculosis, the diagnostic problem persists for those patients where pulmonary tuberculosis is not obvious.[27] In this study, abdominal tuberculous patients were poor, had low socioeconomic status. Most of the patients are habituated in drinking cow's milk.

The proper pasteurization of milk is not possible due to lack to knowledge or government legislation. Another factor might be considered here that the cows are infected but not treated due to lack of proper veterinary supervision. So far, the immunological status of those patients concerned, it is inadequate. Massive program of immunization (EPI) started in country for last 15 years. But the peak incidence of tuberculosis ranges from age 20-30 years.[28] In general, these patients have lower body resistances due to repeated upper respiratory infections and gastroenteritis. Overall, social our prejudices and negligence's also an important factory. Present study is biased study population presented at Hamidia hospital Bhopal mostly population presented is from low socio-economic status.

According to Mostanzid SM Faridpur tuberculosis present in 34% cases and present study it is in 38% cases in lymphadenopathy.[29]

The third most common cause of abdominal lymphadenopathy is metastatic carcinoma of intra-abdominal organ. In our country, most of the patients present with malignancy in a late stage.[30] Reasons are the negligence of the patient, limited scope of early diagnostic in almost all the cases. In Faridpur study lymphadenopathy secondary to metastasis present in 24% cases but in present study, it is in only in 3.2% cases. All cases previously diagnosed for primary cancer.[31]

In this study, lymphomas have been considered separately as a cause of abdominal lymphadenopathy. Clinical diagnosis of abdominal lymphoma is relatively difficult task Lymphoma present in 4% cases in mostanzid study in present study it is in 2% cases all are nonhodgkins lymphoma Ultrasound guided FNAC nowadays were being used in a study, and showed 7 cases out of 37 patients as abdominal lymphoma, in Faridpur study, only 3 cases of lymphoma (4%) through laparotomy.[32] In present study 3 cases diagnosed by USG guided core needle biopsy and 2 from laparotomy.

The present study "Clinico-Pathological Correlation of Abdominal Lymphadenopathy" is clinical study of 250 cases of abdominal lymphadenopathy admitted to Hamidia Hospital (attached Gandhi Medical College, Bhopal) during 2013 to 2015.

This study included selection of patient with significant lymphadenopathy. The study included a total number of 250 cases. All the patient was admitted and examined and detailed history and good physical exam were done, the investigations were done which included the routine basic investigation i.e., Hb%, total count, ESR and special investigation like chest X-ray abdominal x-ray barium studies, USG abdomen, CT abdomen.

Abdominal lymph nodes are enlarged then specimen of abdominal lymph node send for histopathological examination then we plan further management of patient according to histopathology report if the report positive for tuberculosis then we start Antitubercular treatment post operatively to prevent further consequences of abdominal tuberculosis and if any pathology like lymphoma and metastasis in lymph node then we plan for the further treatment accordingly.

So, it can be concluded that abdominal lymphadenopathy histopathological examination is an important role in management of patients

- Tuberculosis is one of the common causes of Abdomen lymphadenopathy
- Age incidence more in males and in second and third decade of life is more common.
- Abdominal pain, loss of weight and appetite with bowel disturbances are the common clinical manifestation.
- It is obvious from this study that tuberculosis is a problem in our country.
- Regarding the abdominal tuberculosis, the diagnostic problem persists for those patients where pulmonary tuberculosis is not obvious.
- Most tubercular patients present with perforation peritonitis
- 4% cases of tubercular lymphadenopathy associated with jejunal strictures and 8% cases associated with ileal strictures.
- In 8% cases tubercular lymphadenopathy associated with hypertrophic ileocaecal junction.
- Abdominal pain was the commonest presenting symptom in almost all cases
- Surgery in the form of stricturo plasty, local resection, ileo-colonic anastomosis is common surgical procedure done for abdominal tuberculosis.
- Chemotherapy still continue to be treatment of choice after confirmation of diagnosis.
- Surgery indicated for complication of abdominal tuberculosis like intestinal obstruction or perforation
- All the abdominal tuberculosis cases were started with ATT which is recommended by RNTPC DOTs programmed and followed up to 6 months to 2 years.
- Another common cause of abdominal lymphadenopathy is nonspecific lymphadenitis. It is due to viral. bacterial infections.
- Rest of the cases of peritonitis with lymphadenopathy other than tuberculosis are nonspecific.
- Third common cause of lymphadenopathy is secondary to metastasis all cases are previously diagnosed.
- Fourth cause of lymphadenopathy is lymphoma, it is least common cause of lymphadenopathy in present study.
- In this study Lymphadenopathy most commonly due to nonspecific lymphadenitis in the 56.8% cases
- Abdominal tuberculosis as histopathologically found in 52% cases, in 38% cases lymph nodes are positive for tuberculosis.
- In 38% cases ,28% cases tissue diagnosis and lymph nodes both are positive for tuberculosis
- 14% cases no lymph nodes positive for histopathology but tissue obtained intraoperatively like tubercles. perforation margins. stricture segments, ileocaecal lump positive for tuberculosis.
- In 10% cases lymph nodes are positive for tuberculosis without tissue diagnosis.

CONCLUSION

This study support fact that abdominal lymphadenopathy is important indicator of underlying cause of pathogenesis from which we reach the diagnosis. In present study in 10% cases only lymph nodes are positive for tuberculosis without tissue diagnosis, which can be treated to prevent the further complications.

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