Section: General Surgery

Original Research Article

TO STUDY THE AETIOLOGY, PATTERN OF PRESENTATION, MANAGEMENT AND COMPLICATIONS IN PATIENTS WITH RIGHT ILIAC FOSSA MASS IN OUR INSTITUTION

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Abstract

Background: RIF mass is due to many causes which includes appendicular mass, appendicular abscess, ileocaecal TB, Ca Rectum and parietal wall or retroperitoneal causes and which presents with abdominal pain mostly with associated features and complications and will be managed surgically and conservatively depends on cause of RIF mass. Aim and objective is to study the aetiology, pattern of presentation, management and complications in patients with right iliac fossa mass in our institution. **Materials and Methods:** A retrospective study was carried out in our institution over a period of two years from OCTOBER 2010 TO OCTOBER 2012 for all patients who are provisionally diagnosed to have mass in the right iliac fossa by clinical evaluation. **Result & Conclusion:** RIF mass were more in people from low socio –economic status and the commonest symptom was pain in abdomen. Appendicular pathology (60%) either in the form of appendicular mass (32.5%) or appendicular abscess (27.5%) were the commonest cause of mass in the right iliac fossa. Ileo-caecal tuberculosis (20%), carcinoma caecum (12.5%) was the other common causes of mass in the right iliac fossa. Ultrasound abdomen was the essential investigation and it had a sensitivity of greater than 95%. In patients with appendicular mass, initial conservative management followed by interval appendicectomy had better results with minimal complications. In patients with appendicular abscess, abscess drainage combined with appendicectomy in the same procedure, had high morbidity compared to patients who underwent interval appendicectomy following abscess drainage. 44% of the patients with ileo-caecal tuberculosis were managed conservatively with anti-tubercular therapy (DOTS-I). Surgery was required in another 56 % of the patients, of which 25 % of the patients presented with acute complications needing immediate surgery.

INTRODUCTION

Right iliac fossa mass may arise from parietal wall or intraperitoneum or retroperitoneum. Mass may arise from right iliac regional structures or extended from adjacent structures.

Various Causes for Right Iliac Fossa Mass

Parietal Wall Masses: Lipoma, Desmoid tumor, pyogenic abscess and haematoma, iliac or appendicular abscess burrowing into abdominal wall.

Intraperitoneal Masses: Appendicular abscess or mass, Ileocaecal tuberculosis, carcinoma caecum, mesenteric adenitis, iliac nodes, typhilitis, crohn's disease, actinomycosis, distended gallbladder, ovarian cysts, fibroid uterus, tubo-ovarian mass, occasionally intussusception, amoeboma, diverticular disease.

Retroperitoneal Masses: Sarcoma, aneurysm, psoas abscess, undescended testis, unascended kidney and tumour from ilium and cartilage.

Appendicular pathology is commonest cause for right iliac fossa mass (either appendicular mass or abscess). Other common causes are ileo-caecal tuberculosis and carcinoma caecum.

Appendicular mass is formed by inflamed appendix adherent with dilated ileum, greater omentum and caecum.[1] Appendicular abscess due to suppuration in an acute appendicitis or suppuration in an already formed appendicular mass.[1]

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Abdominal tuberculosis is common in developing countries like India. It is sixth most common type of extra pulmonary tuberculosis. Its incidence is high in HIV infected patients.[2] Ileo-caecal tuberculosis is commonest type of abdominal tuberculosis due to presence of Peyer's patches and stasis of luminal contents favoured by ileo-caecal valve.

Commonest type of carcinoma in caecum is adenocarcinoma. Third common site in large bowel carcinoma (12%). Diet with lack of fibres and high fat increases risk. Dietary vitamins A, C, E (antioxidants) and Zinc and high fibre diet reduce the risk.

Diagnosis of right iliac fossa mass mainly depends on complete clinical examination, radiological, biochemical, microbiological and pathological investigations. Commonest cause of right iliac fossa mass in our country is appendicular mass or abscess, ileo-caecal tuberculosis and carcinoma caecum

MATERIALS AND METHODS

This retrospective study was carried out in our institution over a period of two years from October 2010 to October 2012. All patients who are provisionally diagnosed to have mass in the right iliac fossa by clinical evaluation are included in the study. All data including age, gender, relevant history, investigations (complete blood count, Blood grouping and Rh typing, HIV I & II, Chest radiograph, Ultrasound abdomen and pelvis, CT Scan abdomen and pelvis, IVP and barium follow through and enema, FNAC, BIOPSY) were done to conclude the final diagnosis and appropriate treatment and postoperative complications and final histopathological reports were recorded in the standard forms.

Cases are selected by following Inclusion and exclusion criteria;

Inclusion criteria

All the cases admitted with Right iliac fossa mass in our institution.

Exclusion criteria

Female patients with gynaecological diseases.

Paediatric age group (<12 years) patients with right iliac fossa mass.

RESULTS

In our study of 80 cases, 60% percent of cases are related to appendicular pathology. 20% of cases are related to ileo-caecal tuberculosis, 12.5% cases are related to carcinoma caecum, 7.5% of cases are related to various type of parietal wall & retroperitoneal causes like Psoas abscess, Retroperitoneal Schwannoma, Desmoid tumour, Rectus sheath haematoma . One case of carcinoma caecum was associated with ileo-caecal tuberculosis. [Table 1]

In our study, USG abdomen & pelvis was done for all patients and most of them were diagnosed correctly. Barium study done for (9) ileo-caecal tuberculosis patients and carcinoma caecum (8) patients and all of them were diagnosed correctly. Colonoscopy done for two ileo-caecal tuberculosis and two carcinoma caecum patients. USG/CT guided FNAC done for three ileo- caecal tuberculosis patients and FNAC done for two desmoid tumour patients. CT done for 31 patients in various conditions and all of them were correctly diagnosed. [Table 2]

Among surgically treated 19 appendicular mass patients, 16 patients were treated with interval appendicectomy and 3 patients were treated with emergency appendicectomy. In 22 appendicular abscess patients ,14 patients were treated with emergency appendicectomy and 7 patients were treated with interval appendicectomy following extraperitoneal abscess drainage, one patient was treated by extraperitoneal drainage alone. Among, surgically treated 9 patients of ileo-caecal tuberculosis, 4 patients were treated by emergency procedures following acute presentation and 5 patients were treated by elective procedures after initiating ATT. Among surgically treated 9 carcinoma caecum patients, 7 were treated with elective procedures and 2 patients were treated by emergency procedures for acute presentation. [Table 3]

Among conservatively treated 26 appendicular mass patients, 23 patients responded to Ocshner-Sherren's regimen (88%). 12 % of the patients did not respond to Ocshner-Sherren's regimen were taken for emergency surgery.

Among surgically treated 19 patients with appendicular mass, 3 cases were emergency appendicectomy, 16 cases were interval appendicectomy.Among 22 patients with appendicular abscess, 14 patients were treated with laparotomy & drainage with emergency appendicectomy and 7 patients treated with laparotomy and drainage followed interval appendicectomy and one patient treated with laparotomy and drainage did not turned back for interval appendicectomy. Among surgically treated 9 ileo-caecal tuberculosis patients, 3 patients are treated with laparotomy and adhesiolysis with biopsy, another 5 patients are treated with laparotomy and adhesiolysis with limited resection, one ileal perforation patient was treated with emergency laparotomy and limited resection. Among surgically treated 9 carcinoma caecum patients, 7 patients are treated with right radical hemicolectomy electively and emergency right radical hemicolectomy was done for one patient who presented with acute right colo-colic intussusception , another one perforated patient was treated with emergency laparotomy and ileostomy. Laparotomy and excision biopsy was done for retroperitoneal Schwannoma patient. Wide excision and parietal wall reconstruction was done for parietal wall desmoid tumour patients. Psoas abscess patients were treated with extraperitoneal drainage and ATT. Rectus sheath haematoma patient was treated by evacuation. [Table 4]

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In our study 41% of patients had in-patient stay of less than 10 days. 59% of patients stayed for more than 10 days, these included surgically treated ileo-caecal tuberculosis and carcinoma caecum cases. Most of the interval appendicectomy patient's hospitalization is more than 10 days. [Table 5]

Table 1: Incidence of Various Conditions

Sl.No.	Diagnosis	No of cases	Percentage
1.	Appendicular mass	26	32.5
2.	Appendicular abscess	22	27.5
3.	Ileocaecal tuberculosis	16	20
4.	Ca Caecum	10	12.5
5.	Parietal Wall & Retroperitoneal causes*	6	7.5
	Total	80	100

Table 2: Investigations

USG (abd & pel)		Barium study		Colonoscopy		CT (abd & pel)		FNAC (USG/CT guided)		Findings
No	%	No	%	No	%	No	%	No	%	
26	32.5	0	0	0	0	5	16	0	0	Appendicular mass
22	27.5	0	0	0	0	2	7	0	0	Appendicular abscess
16	20	9	52	2	50	8	26	3	60	Ileocaecal tuberculosis
10	12.5	8	48	2	50	10	32	0	0	Ca Caecum
6	7.5	0	0	0	0	6	19	2	40	Parietal Wall & Retroperitoneal causes
80	1000	17	100	4	100	31	100	5	100	Total

Table 3: Mode of surgery

Sl. No.	Diagnosis	Number of cases	Emergency Surgery		Elective Surgery	
			No	%	No	%
1	Appendicular mass	19	3	16	16	84
2	Appendicular abscess	22	22	100	0	0
3	Ileocaecal tuberculosis	9	4	44	5	56
4	Ca Caecum	9	2	22	7	78
5	Parietal Wall & Retroperitoneal causes*	6	3	50	3	50
	Total	65	34	52	31	48

Table 4: Mode of treatment for appendicular mass

Sl. No.	Mode of treatment	Number of cases	Percentage
1	O-S regimen alone	7	26
2	Emergency appendicectomy (O-S regimen failed)	3	12
3	Interval appendicectomy (Followed by O-S regimen)	16	62
	Total	26	100

Table 5: Duration of inpatient period (days)

Sl. No.	Diagnosis	No of cases	IP Duration < 10 days	Percentage	IP Duration > 10 days	Percentage
1	Appendicular mass	26	10	38	16	62
2	Appendicular abscess	22	14	64	8	36
3	Ileocaecal tuberculosis	16	7	44	9	56
4	Ca Caecum	10	1	10	9	90
5	Parietal Wall & Retroperitoneal causes	6	1	17	5	83
Total		80	33	41	47	59

DISCUSSION

Mass in the right iliac fossa is one of the common entity in surgical practice. Evaluation of right iliac fossa mass is essential for management and outcome. In our study of "Evaluation of Right Iliac Fossa Mass" was made at our institution Chengalpattu Medical College from October 2010 to October 2012. 80 cases of right iliac fossa mass were studied. Among 80 cases, majority of the cases are from rural, low socio-economic group. In our study the commonest cause of right iliac mass is appendicular pathology (either appendicular mass -32.5% or appendicular abscess - 27.5%) followed by ileo-caecal tuberculosis- 20% and carcinoma caecum-12.5% other rare causes - 7.5%.

Appendicular Pathology: In our study, appendicular pathology (either appendicular mass or appendicular abscess) constituted 60%. According to Schwartz's principles of surgery, male to female ratio in appendicular pathology is 1.2 - 1.3 : 1 , in our study male to female ratio is 1.1: 1 , which is comparable . In our study of appendicular pathology 100% of patients had pain and 69% had fever, 40% had vomiting and anorexia, 88% had tachycardia and common age group is 10 – 60 years (98%36). Okafor

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PI et al said common symptoms in appendicular mass and appendicular abscess are pain, fever,dyspepsia, anorexia and tender palpable RIF mass and the commonest age group is 2nd to 6th decade, which is comparable in our study .

Majority of patients had symptoms for less than one month duration and only a few patients had abdominal mass as a symptom, and most of appendicular pathology patients are not anaemic, had mild elevation of ESR, and raised heart rate in 88% of cases. Oliak37 D et al said factors at admission, pain, fever, tachycardia like symptoms and blood investigations had 86% sensitivity and 58% specificity, which is comparable.

In our study 85% of patients had elevated C-Reactive protein and 81% had leukocytosis. Gronross38 JN et al said leukocytosis is an early marker in appendicular pathology and raised CRP is a late marker and if leucocyte count and CRP are normal that condition is unrelated to appendicular mass or abscess, which is comparable. Gronross JM39 said that appendicular mass or abscess can be ruled out in an adult patient if total leucocyte count and CRP are with in normal limits. Among 17 patients treated with emergency appendicectomy 6 patients developed wound infection, 1 patient developed faecal fistula, among those 6 patients who developed wound infection , 1 patient developed incisional hernia . All emergency appendicectomy patients HPE report was acute appendicitis and for all interval appendicectomy patients HPE report was chronic appendicitis. Most of the post-operative complications occurred in emergency appendicectomy done for appendicular mass or appendicular abscess. Interval appendicectomy planned for either conservatively treated appendicular mass patients or post appendicular abscess drainage patients increases duration of hospital stay and cost of health, but interval appendicectomy produced very minimal post-operative complications. Hurme T42 et al said emergency appendicectomy done for appendicular abscess in acute phase produced more complications, abscess drainage followed by interval appendicectomy healed well without complications, which is comparable. Eriksson S 43et al said that interval appendicectomy and emergency appendicectomy for acute appendicitis had the same complication rates. Hoffman45 et al said only 20% of patients developed recurrence following conservative treatment of appendicular mass. Among 20%, most of the recurrence (66%) occurred within 2 years. Corefield L et al 46 said more than 50% of the surgeons do interval appendicectomy anticipating the recurrence rate of 10% - 25% and complication rate of 23%. So a randomized control trial is needed for evaluation of this issue.

In our institution, conservatively treated 16 appendicular mass patients and surgically drained 7 appendicular abscess patients underwent interval appendicectomy (74%). Conservatively treated 26% patients did not come for follow-up and surgery.

Ileo-Caecal Tuberculosis: Abdominal tuberculosis is one of the important gastroenterological problem in developing countries, newer drugs and advanced socio-economic status in developed countries controlled the tuberculosis, but majority of the under developed countries had huge problem in prevention of tuberculosis, abdominal tuberculosis is a common problem in our country also. Majority of the abdominal tuberculosis patients treated conservatively in our institution. Ileo-caecal tuberculosis constituted about 30% of abdominal tuberculosis. Commonly affected age group is 25 – 50 years, common symptoms are pain, fever, vomiting, weight loss and anorexia. In our institution 20% of RIF mass are due to ileo-caecal tuberculosis, 56% are females and 44% are males. Most of patients had symptoms for more than one month, 56 % of patients had symptoms for 1 -3 months. Commonest symptoms are pain, followed by fever and loss of weight. Majority of the patients had firm, mobile or restricted mobile, irregular mass per abdomen.

62.5% of patients are anaemic, more than 75% of patients had elevated ESR. Sharp J E47 et al said 95% of the patients had elevated ESR, which is comparable in our study.

In our study, among 80 patients, 20% (16 patients) had ileo-caecal tuberculosis. Among 16 patients (19%), 3 patients had positive Mantoux test, and 2 patients (13%) had Koch's lesion on chest radiography and 8 patients (50%) had air-fluid level, one patient had pneumoperitoneum on abdomen radiography. Laparoscopy is the useful recent modality for diagnostic and therapeutic purposes in abdominal tuberculosis. Balthazar E J48 et al said barium study with CT conjunction is useful for the diagnosis of the location, extent and mesenteric involvement of ileo-caecal tuberculosis lesions.

Uzun Koy 49– A et al said USG guided FNAC is a reliable investigation for ileo-caecal tuberculosis, which is comparable. Kosal' enikov52 S O et al said surgery is required for 91% of complicated abdominal tuberculosis patients. Commonly, right hemicolectomy, enterostomy, abscess drainage, excision of necrotic lymph nodes, adhesiolysis, formation of bowel by-pass or anastomosis are required in appropriate patients. Early diagnosis with ATT and surgical procedures improved the outcome, which is comparable.

Prakash A 53et al said ileo-caecal tuberculosis is common in 20 – 40 years of age and affected female to male ratio is 1.6:1. Barium study is a useful investigation. 44% of patients developed sub-acute intestinal obstruction and 16% patients had acute intestinal obstruction. Bowel resection and by-pass procedures are required in 16% of patients, which is comparable.

Carcinoma Caecum: Colorectal carcinoma commonly occurs after 5th decade, males are more prone than females and high prevalence rate is noted in high socio-economical group of population. In our study of RIF mass, 12.5% cases are due to carcinoma caecum and majority of the patients are in 6th decade

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followed by 7th and 5th decade, male to female ratio is 3:2, most of the patients are from low socio-economical group.

Stock – C 55 et al said carcinoma caecum is more prevalent in patients more than 50 years of age, affects males more than females. Colonic carcinoma prevalence is increased in 8th decade, which is comparable. Mohandas 56K M et al said male sex is predominantly affected in colonic carcinoma and increased prevalence is noted in immigrants and urban population than rural Indians due to environmental and dietary habits, which is comparable. Majority of patients had symptoms for more than 1-month, commonest symptoms are pain, loss of weight and mass per abdomen. All cases had hard mobile or fixed RIF mass. 80% of carcinoma caecum patients were anaemic and had mild elevation of ESR. Among 10 cases of carcinoma caecum marked elevation of ESR is present in one case that had associated abdominal tuberculosis (10%).

Li J N57 et al said that carcinoma colon is a disease of the old age associated with anaemia and palpable mass per abdomen, right sided colonic malignancies decreased and left sided colonic malignancies are increased in current studies.

Sadahiro58 S et al said 26% of women and 21% of men with right sided colonic carcinoma have haemoglobin less than 10 grams percentage, which is comparable.

Forslund59 A et al said that low haemoglobin and elevated ESR, CEA, ALP is present in colonic carcinoma. Outcome of the patients with marked elevation of ESR and severe anaemia was poor, which is comparable. In our study, 20% of patients had significant elevation of serum CRP titres. Gur T60 et al said colonic malignancy patients had significant elevation of CRP and Chung Y C 61et al said outcome of the patients with elevated serum CRP was poor and one-third of the patients with advanced disease had markedly elevated CRP titres, which is comparable.

USG abdomen and pelvis was done for all patients (100%), barium study was done for 8 patients, CT scan abdomen and pelvis was done for all patients. CT scan revealed RIF mass in 8 patients, right sided colo-colic intussusception in one patient and pneumoperitoneum in another one patient. Colonoscopy was done for 20% of the patients with ileal perforation, underwent emergency ileostomy and expired post-operatively due to LRI with septicemia. All other patients came for regular follow-up and were on anti- cancer chemotherapy. One patient (10%) with advanced carcinoma caecum was treated with palliative chemotherapy. For all post-operative patients HPE reports revealed various types of adenocarcinoma caecum. Among 10 carcinoma caecum patients, one patient (10%) had associated abdominal tuberculosis and was started on ATT prior to chemotherapy.

Parietal Wall and Retroperitoneal Causes: In our study, both the parietal wall desmoid tumour patients are females in reproductive age group. USG, CT confirmed the parietal wall lesion, FNAC and excision biopsy followed by surgery confirmed the diagnosis.

Aissa 64 A et al said that desmoid tumour is common in anterior abdominal wall, more prevalent in pregnancy and post-partum period and associated with hormonal influence. USG, CT, MRI and post-operative excisional biopsy reports are confirmatory investigations, which is comparable.

Etiology of both the psoas abscess patients was tuberculosis, both underwent extra-peritoneal drainage with ATT.

Villar F65 C et al said 50% of the psoas abscess is associated with skeletal tuberculosis, which is comparable in our study. In our study, one rectus sheath haematoma patient presented as RIF mass, surgical evacuation of the haematoma was done as the conservative management failed.

Rajagopal 66et al said that abdominal pain in parietal wall haematoma is a rare entity and is treated conservatively and rarely require surgical intervention, which is comparable.

In our study, one retroperitoneal Schwannoma patient presented as RIF mass which was diagnosed by USG/CT/ USG guided core needle biopsy. Surgical excision was done.

Rai B R 67 et al said that pelvic Schwannoma presented as RIF mass and right sciatica, which is comparable.

In our study USG abdomen and pelvis is done for all cases and RIF mass was diagnosed in more than 95% of the patients. In inconclusive cases, various investigations like CT, barium study, colonoscopy, USG guided FNAC were done.

CONCLUSION

Right iliac fossa mass was common in 20 to 50 years of age group.

Overall incidence was more common in males as compared to females (1.1:1).Appendicular pathology and Carcinoma caecum was more common in males as compared to females. Ileo-caecal tuberculosis was more common in females.

The diseases were more in people from low socio – economic status and the commonest symptom was pain in abdomen.

Appendicular pathology (60%) either in the form of appendicular mass (32.5%) or appendicular abscess (27.5%) were the commonest cause of mass in the right iliac fossa. Ileo-caecal tuberculosis (20%), carcinoma caecum (12.5%) was the other common causes of mass in the right iliac fossa.

Ultrasound abdomen was the essential investigation and it had a sensitivity of greater than 95%.

Normal levels of serum CRP titer essentially ruled out appendicular pathology. Serial titers were helpful in assessing the treatment response of ileo-caecal tuberculosis and in prognosis of carcinoma caecum.In patients with appendicular mass, initial conservative management followed by interval

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appendicectomy had better results with minimal complications.

In patients with appendicular abscess, abscess drainage combined with appendicectomy in the same procedure, had high morbidity compared to patients who underwent interval appendicectomy following abscess drainage.

44% of the patients with ileo-caecal tuberculosis were managed conservatively with anti-tubercular therapy (DOTS-I). Surgery was required in another 56 % of the patients, of which 25 % of the patients presented with acute complications needing immediate surgery. 31 % of the patients presented with sub-acute intestinal obstruction due to adhesions and strictures following the initiation of anti-tubercular therapy, which later required surgical intervention.

80 % of the patients with carcinoma caecum underwent successful surgical resection. 20 % of the patients presented with acute surgical problem requiring immediate surgery. 10 % of the patients presented with advanced disease.

Most of the parietal wall and retroperitoneal conditions were treated surgically.

Early evaluation and intervention is needed to improve the patients' outcome and to reduce the morbidity and mortality.

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