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RIGHT ILIAC FOSSA MASS;
CLINICAL SPECTRUM

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ABSTRACT… Objectives: To determine the frequency and clinical pattern of mass in right iliac fossa. **Study Design:** Cross sectional multicenter study. **Period:** One year (from 03 March 2014 to 02 March 2015). **Setting:** Patients with right iliac fossa mass of >11 years of and of either gender admitted in department of surgery at Liaquat university hospital Hyderabad / Jamshoro and Peoples University Hospital Nawabshah. **Patients and methods:** The data was analyzed in SPSS 16 and the frequency and percentage was calculated. **Results:** During one year study period, out of 227 patients, 112 subjects were observed to have right iliac fossa mass due to different etiologies, of which 82(73.2%) were males and 30 (26.8%) were females. The mean age ±SD for overall population was 39.32±8.66 while it was 37.88±6.75 and 38.93±7.72 in male and female population respectively. The male population was predominant while the patterns observed were appendicular mass in 19(17%), appendicular abscess in 26(23.21%), ileocaecal tuberculosis in 38(34%), carcinoma caecum in 14(12.5%), psoas abscess in 5(4.46%) and others in 10(9%) respectively. **Conclusion:** The highest incidence of mass in the right iliac fossa was seen in second, third and four decades with male population predominance. The common disorders identified were ileocaecal tuberculosis, appendicular mass and abscess and carcinoma caecum respectively

Key words: Right iliac fossa mass, appendicular mass, appendicular abscess, ileocaecal tuberculosis, tuberculosis, carcinoma caecum and psoas abscess.

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NTRODUCTION

The mass in the abdomen has wide spread implications and since long exercised the minds of many researchers and health care providers.[1] Mass in the right iliac fossa is not an uncommon presentation and still a matter of discussion and the patient with mass in the right iliac fossa may visit to the surgeon, physician, paediatrician and obstetrician and gynecologist.[2,3] The well-known reported causes for RIF mass are appendix and psoas abscess, GI malignancy / cecal carcinoma, tubo-ovarian malignancy / abscess, crohn's disease, ectopic (pelvic) kidney / transplanted kidney, ileocaecal tuberculosis and enlarged lymph nodes, appendix mass, retroperitoneal tumors or massive distension of gall bladder, ruptured epigastric artery and external or common iliac artery aneurysm, appendicular mucocele, non-Hodgkin lymphoma, undescended testis malignancy and chondroma ilium.[3]

The detail understanding about the anatomy, physiology and pathological processes that may occur within the abdomen are important for an exact diagnosis and management plan.[4] Some patients need immediate surgical intervention, whereas others managed conservatively.[5] This task of identifying various well defined clinic-pathological parameters and patterns of mass in the right iliac fossa gave us awareness us to plan and conduct this study.

The study was conducted to evaluate frequency and spectrum of various well defined clinico-pathological entities regarding to lump in the right iliac fossa at tertiary care teaching hospitals. The rationale of the study was to evaluate the different etiological factors responsible for RIF masses in our local setup and local population, furthermore the results of our this published study will also shared in academic national and

international seminars and conferences as well as during academic discussions in health care setups to create awareness within the health care providers as far as clinical work up and update management strategies are concerned.

PATIENTS AND METHODS

This cross sectional multicenter study of one year (from 03 March 2014 to 02 March 2015) was conducted in department of surgery at Liaquat university hospital Hyderabad / Jamshoro and Peoples university hospital Nawabshah. All the subjects with right iliac fossa mass were recruited and admitted in the ward. The patients were evaluated after they were diagnosed as having intra-abdominal mass in the right iliac fossa after detail history taking, thorough general and local clinical examination and specific investigations. Female subjects with pathologies related to uterus, its appendages, ectopic (tubal) pregnancy, and masses arising from anterior abdominal wall and bone in such region and subjects with renal transplant were excluded from the study. All clinical findings were saved in the proforma and informed consent was taken from every patient to participate in the study. Patients were advised to present themselves for follow-up visit after a specific interval or recurrence of symptoms, meanwhile all individuals received supportive treatment accordingly. Bowel preparation was done in all relevant patients requiring exploratory laparotomy. During laparotomy, in addition to specific pathology and relevant surgery, intra-abdominal examination of all organs was done and particular specimen was preserved for histopathology evaluation whereas the drains were removed after 48 hours and sutures were removed on the seventh post-operative day.

The data was entered, saved and analyzed in SPSS version 16, the frequency and percentage was calculated for every proportion and gender distribution. The chi-square test was applied on categorical variables at 95% CI and the p-value ≤ 0.05 was agreed to level of significance.

RESULTS

During one year study period out of 227 patients, 112 individuals were observed to have right iliac fossa mass due to different etiologies, of which 82(73.2%) were males and 30 (26.8%) were females. The mean age ±SD for overall population was 39.32±8.66 while it was 37.88±6.75 and 38.93±7.72 in male and female population respectively. The frequency and clinical pattern of detectable disorders in relation to age, gender and duration of disease are shown in Table I-VI respectively.

		DISEASE						Total	P-value
		Appendicular mass	Appendicular abscess	Ileocaecal tuberculosis	Carcinoma caecum	Psoas abscess	Others*		
AGE	11-20	5	3	3	0	0	3	14	<0.01**
		26.3%	11.5%	7.9%	.0%	.0%	30.0%	12.5%	
	21-30	7	7	7	0	0	0	21	
		36.8%	26.9%	18.4%	.0%	.0%	.0%	18.8%	
	31-40	0	12	21	2	2	2	39	
		.0%	46.2%	55.3%	14.3%	40.0%	20.0%	34.8%	
	41-50	4	4	4	2	1	3	18	
		21.1%	15.4%	10.5%	14.3%	20.0%	30.0%	16.1%	
	51-60	2	0	2	8	2	2	16	
		10.5%	.0%	5.3%	57.1%	40.0%	20.0%	14.3%	
	60 +	1	0	1	2	0	0	4	
		5.3%	.0%	2.6%	14.3%	.0%	.0%	3.6%	
Total		19	26	38	14	5	10	112	
		100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	

Table-I. The Frequency and Pattern of Right Iliac Fossa Mass

** Actinomycosis; Crohn's disease; Unascended kidney; Neuroblastoma*

***p-value is statistically significant*

		GENDER		Total	P-value
		Male	Female		
AGE	11-20	12	2	14	0.04*
		14.6%	6.7%	12.5%	
	21-30	13	8	21	
		15.9%	26.7%	18.8%	
	31-40	27	12	39	
		32.9%	40.0%	34.8%	
	41-50	13	5	18	
		15.9%	16.7%	16.1%	
	51-60	14	2	16	
		17.1%	6.7%	14.3%	
	60 +	3	1	4	
		3.7%	3.3%	3.6%	
Total		82	30	112	
		100.0%	100.0%	100.0%	

Table-II. The distribution of age and gender
**Statistically significant*

		DURATION (months)			Total	P-value
		1-3	3-6	> 6		
AGE	11-20	10	3	1	14	<0.01*
		26.3%	7.7%	2.9%	12.5%	
	21-30	10	10	1	21	
		26.3%	25.6%	2.9%	18.8%	
	31-40	10	10	19	39	
		26.3%	25.6%	54.3%	34.8%	
	41-50	3	9	6	18	
		7.9%	23.1%	17.1%	16.1%	
	51-60	4	5	7	16	
		10.5%	12.8%	20.0%	14.3%	
	60 +	1	2	1	4	
		2.6%	5.1%	2.9%	3.6%	
Total		38	39	35	112	
		100.0%	100.0%	100.0%	100.0%	

Table-III. The distribution of age and duration of disease
**Statistically significant*

		GENDER		Total	
	PATHOLOGY	Male	Female		P-value
	Appendicular mass	18	1	19	0.04**
		22.0%	3.3%	17.0%	
	Appendicular abscess	16	10	26	
		19.5%	33.3%	23.2%	
	Ileocaecal tuberculosis	24	14	38	
		29.3%	46.7%	33.9%	
	Carcinoma of caecum	13	1	14	
		15.9%	3.3%	12.5%	
	Psoas abscess	4	1	5	
		4.9%	3.3%	4.5%	
	Others*	7	3	10	
		8.5%	10.0%	8.9%	
Total		82	30	112	
		100.0%	100.0%	100.0%	

Table-IV. The gender distribution for right iliac fossa masses
**Actinomycosis; Crohn's disease; Unascended kidney; Neuroblastoma*
***Statistically significant*

		DURATION (months)			Total	P-value
	PATHOLOGY	1-3	3-6	> 6		
	Appendicular mass	9	5	5	19	0.05**
		23.7%	12.8%	14.3%	17.0%	
	Appendicular abscess	12	12	2	26	
		31.6%	30.8%	5.7%	23.2%	
	Ileocaecal tuberculosis	7	12	19	38	
		18.4%	30.8%	54.3%	33.9%	
	Carcinoma of caecum	4	5	5	14	
		10.5%	12.8%	14.3%	12.5%	
	Psoas abscess	1	2	2	5	
		2.6%	5.1%	5.7%	4.5%	
	Others*	5	3	2	10	
		13.2%	7.7%	5.7%	8.9%	
Total		38	39	35	112	
		100.0%	100.0%	100.0%	100.0%	

Table-V. The identified pathology in relation to duration of disease
**Actinomycosis; Crohn's disease; Unascended kidney; Neuroblastoma*
***Statistically significant*

		DURATION (months)			Total	P-value
	GENDER	1-3	3-6	> 6		
	Male	28	26	28	82	0.43*
		73.7%	66.7%	80.0%	73.2%	
	Female	10	13	7	30	
		26.3%	33.3%	20.0%	26.8%	
Total		38	39	35	112	
		100.0%	100.0%	100.0%	100.0%	

Table-VI. The distribution of gender in relation to duration of disease
**Statistically non-significant*

DISCUSSION

According to Meshikhes AWN appendicular lump was more common in second and fourth decades of life with male to female ratio 20:5.[6] In present study, appendicular masses was observed in 19 (17%) of cases mostly identified in second and fourth decades with male predominance. It has been postulated that on the third day (might be sooner) after the attack of acute appendicitis, a tender mass can be felt in the right iliac fossa with rigidity of the musculature; while the other parts of abdomen are free from tenderness or rigidity.[7]

Regarding appendicular abscess, 26(23.2%) patients were observed with majority in third decade with male predominance, according to Bradley EL, et al mean age for appendicular abscess occurred was 39.34 ± 3.64.[8]

Tuberculosis of the GI tract represents a major diagnostic and therapeutic issue to a surgeon in the developing countries. In current study, ileocaecal tuberculosis was observed in 38(34%) of patients with right iliac fossa mass and twelve out of 38 cases had associated evidence of pulmonary tuberculosis confirmed by consultant physicians and majority of patients with ileocaecal tuberculosis were from rural areas. According to Rabbani K, et al[9] the highest incidence of this disease was identified in 20-40 years age groups. According to Debi U, et al[10] two third of the patients were in second and third decades and male predominance, the findings are consistent with the present study.

Carcinoma of caecum identified in 14(12.5%) patients in fourth and fifth decades with male predominance. According to Crerand S, et al thirty nine percent patients were over 70 years of age and 51% were between 50-69 years of age with male population predominance.[11]

Psoas abscess was detected in 5(4.5%) patients with male predominance, according to Santaella

RO et al,[12] it was 12 % typical presented with fever, pain in the flank, hip or abdomen with male population predominance.

In present study the ultrasound for abdomen and pelvis was used as initial screening tool for right iliac fossa mass, Millard FC et al,[13] conducted a study to evaluate right iliac fossa mass by ultrasound and observed positive findings in thirty four subjects (68%) and concluded ultrasound correctly detected organ of origin in thirty three patients (97%). Thus ultrasound is the first choice imaging modality for patients presented with right iliac fossa mass.[14,15]

CONCLUSION

The highest incidence of mass in the right iliac fossa was seen in second, third and four decades with male population predominance. Most of our patients were of low socio-economic status and from rural areas. The common disorders identified were ileocaecal tuberculosis, appendicular mass and abscess and carcinoma caecum respectively. It has been observed that the detail clinical history and thorough physical examination is very much supportive for exact clinical diagnosis and differentials, the relevant investigations are also mandatory in all cases related to inflammatory mass at RIF while the surgery is the best option for treatment and when performed with adequate preparations and measures will have good prognosis. Therefore, by detecting early pathology and timely planning for treatment strategy the reduction in morbidity and mortality can be possible in such populations.

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"A stumbling block to the pessimist is a stepping stone to the optimist."

Eleanor Roosevelt

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Ahmed Hussain	Contributions of conception and design, acquisition of data, analysis and interpretation of data	
2	Dr. Syed Kashif Ali Shah	Drafting the article and shares its expert research opinion and experience in finalizing the manuscirpt	
3	Dr. Naeem ul Karim Bhatti	Contributed in conception and interpretation of data and give his expert view for manuscript designing	
4	Dr. Zaheer Ahmed	Analysis and interpretation of data Contributed in conception and shares its expert research opinion	
5	Dr. Hamid Nawaz Ali Memon	Drafting intrpreting and analyzing the data	
6	Dr. Syed Zulfiquar Ali Shah	Drafting and data collection and analysis / manupulate the data and drafting	