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Original Research Article

TO FIND THE AGREEMENT OF CLINICO-RADIOLOGICAL DIAGNOSIS WITH PATHOLOGICAL DIAGNOSIS AND RADIOLOGICAL DIAGNOSIS WITH PATHOLOGICAL DIAGNOSIS, IN DISTINGUISHING BENIGN AND MALIGNANT CYSTIC ABDOMINAL MASSES IN ADULTS.

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Abstract

Background & Methods: The aim of the study is to find agreement of clinico-radiological diagnosis with pathological diagnosis and radiological diagnosis with pathological diagnosis, in distinguishing benign and malignant cystic abdominal masses in adults. A sample size of 24 subjects with 80% power to detect kappa value of 0.6 (60% agreement between clinico-radiological diagnosis with pathological diagnosis is taken on the basis of expert opinion) between clinico-radiological diagnosis with pathological diagnosis and also radiological diagnosis with pathological diagnosis.

Results: Pain in the abdomen was the predominant complaint in 67.5% cases with cystic abdominal masses; the other common complaints being weight loss (20.8%), abdominal distension and anorexia (16.2 % each). In 18.9 % i.e.7/ 37 cases the cystic abdominal mass was an incidental finding on imaging in our study. Miscellaneous complaints seen in 6/ 37cases were severe headache, loss of consciousness and palpitations (1 case); breathlessness, fatigue and palpitations (1 case); giddiness and headache in 1 case; secondary infertility in 1 case and amenorrhoea in 2 cases.

CA-125 levels were high in 100% malignant ovarian lesions but also found elevated in 44.4 % benign ovarian cystic lesions. CA 19.9 levels were high in 75 % malignant ovarian lesions but also found elevated in 28.5% benign ovarian cystic lesions.

Conclusion: In a study comprising of 37 adults cystic abdominal masses were more commonly encountered in females i.e. 75.67 % cases and 70.0% cases were in the reproductive age group (15-44 years). Radiological diagnosis was the same as clinico-radiological diagnosis in 25/37 cases who were operated in our study. The agreement of clinico-radiological diagnosis with pathological diagnosis and radiological diagnosis with pathological diagnosis, in distinguishing benign and malignant cystic abdominal masses in adults was the same and found to be good with Kappa value of 0.690 (95% CI; 0.37-1.00) with $P<0.01$.

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Keywords: clinico-radiological, pathological, benign, malignant, cystic masses & abdominal masses.
Study Design: Analytical Study.

1. Introduction

Cystic abdominal masses include a wide spectrum of lesions of diverse origin and pathology. A cystic mass appearing in the abdomen can be a diagnostic challenge, in adult patients of any age and sex.

The major role of the radiologist is to document the cystic nature of the lesion, the organ of origin[1] and the extent of the pathologic process, using a minimal number of imaging studies. Although many imaging modalities are available, their role is still limited and histological diagnosis is usually necessary.

Some cystic abdominal masses are easily diagnosed by their characteristic radiologic features and specific anatomic locations; or it is possible to substantially narrow the differential diagnosis.[2] However, many cystic lesions present as a diagnostic challenge because of non-specific or overlapping imaging features.[2] In very large cystic masses it may be difficult to identify the organ of origin, making the diagnosis difficult.

Diagnosis of cystic lesions of the abdomen is difficult because of non-specific clinical manifestations and radiologic features.[2] It is important for radiologists to be familiar with various disease categories and imaging characteristics of cystic lesions.[2] Imaging examinations have an important role to determine the type of the cystic abdominal masses, which is crucial for management of patients and pre-surgical planning.[6]

2. Material and Methods

The study was conducted in cases recruited from the out-patient departments and wards of Shridevi Institute of Medical Sciences and Research Hospital Tumkur, Karnataka, for 2 Years. Adult patients of any age and sex were included in the study.

A sample size of 24 subjects with 80% power to detect kappa value of 0.6 (60% agreement between clinico-radiological diagnosis with pathological diagnosis is taken on the basis of expert opinion) between clinico-radiological diagnosis with pathological diagnosis and also radiological diagnosis with pathological diagnosis. This size was calculated based on 2.5% (after Bonferroni correction) level of significance.

Selection criteria:

Cases who presented with a palpable cystic lump or a cystic abdominal mass on any imaging modality (Sonography/CT Scan/ MRI) were included.

a) The cystic abdominal lesions may be single or multiple.

b) The cystic masses should measure >/= 2.0cms in diameter and

c) At least 3/4th of the lesion (75%) should be cystic on imaging.

Exclusion criteria:

Cases of cystic abdominal masses with an obvious diagnosis were excluded e.g. liver abscesses, gall bladder lesions, pseudopancreatic cysts, simple renal cysts, polycystic liver and kidneys, hydronephrotic kidney, pyonephrosis, pelvi-ureteric junction obstruction.

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3. Result

Table 1: Age and Gender Distribution (n=37)

Age (in years)	Gender		Total	Percentage(%)
	Male	Female		
15-24	0	10	10	27.0
25-34	1	2	3	8.1
35-44	5	8	13	35.1
45-54	1	3	4	10.8
55-64	1	2	3	8.1
65-74	0	3	3	8.1
75-80	1	0	1	2.8
TOTAL	9	28	37	100.0

Cystic abdominal masses were more commonly encountered in females (28/37) i.e. 75.67 % cases. Majority of cases (26/ 37) i.e. 70.0% were in the reproductive age group (15-44 years).

Table 2: Clinical Symptomatology (n=37)

Clinical symptoms	Number of cases	Percentage
1.Pain abdomen	25	67.5 %
2. Lump in abdomen	22	59.4 %
3. Tenderness in lump	0	0.0 %
4. Abdominal distension	6	16.2 %
5.Vomiting	2	5.4 %
6.Fever	5	13.5 %
7.Anorexia	6	16.2 %
8.Weight loss	8	20.8 %
9.Jaundice	0	0.0 %
10.Bowel complaints	1	2.7 %
11.Haematemesis	1	2.7 %
12.Hematochezia	1	2.7 %
13.Urinary complaints	2	5.4 %
14.Bleeding per vaginum	3	8.1 %
15.Vaginal discharge	1	2.7 %
16.Other complaints e.g , amenorrhoea,etc.	6	16.2 %

Pain in the abdomen was the predominant complaint in 67.5% cases with cystic abdominal masses; the other common complaints being weight loss (20.8%), abdominal distension and anorexia (16.2 % each). In 18.9 % i.e.7/ 37 cases the cystic abdominal mass was an incidental finding on imaging in our study.

Miscellaneous complaints seen in 6/ 37cases were severe headache, loss of consciousness and palpitations (1 case); breathlessness, fatigue and palpitations (1 case); giddiness and headache in 1 case; secondary infertility in 1 case and amenorrhoea in 2 cases.

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Table 3: Laboratory investigations (n=37)

S. No.	Investigation	Number of cases	Normal	Abnormal
1	Hemoglobin (gm%)	37	29	8 (anemia)
2	ESR (mm at the end of 1st hour)	7	5	2
3	Peripheral smear	37	29	8 (microcytic hypochromic anemia)
4	TLC	37	36	1 (increased)
5	Platelet count	37	37	0
6	HIV status	2	2	0
7	Serum amylase	0	0	0
8	Serum lipase	0	0	0
9	Blood sugar	24	23	1 (high)
10	Liver function tests	37	37	0
11	Renal function tests	37	37	0
12	Serological test for hydatid disease	2	1	1
13	Tumour markers			
	CA 125	15	9	6
	CEA	12	8	4
	CA 19.9	12	10	2
	AFP	3	2	1
	LDH	7	5	2
	Beta HCG	7	7	0
14	Mantoux test	1	1	0
15	Urine examination	30	27	3*
16	Stool examination	0	0	0
17	Pap smear	0	0	0
18	Endometrial biopsy	4	2	2**
19	Ascitic fluid analysis	1	0	1-Raised ADA levels (47 U/ml)
20	Chest radiograph	33	29	4

*Urine examination was abnormal in 3 cases- in 1 case sugar was present in urine and in two cases few pus cells were noted.

**Endometrial biopsy showed endometrial adenocarcinoma and granulomatous endometritis.

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Table 4: Tumour markers in Benign and Malignant Ovarian cystic lesions (n=14)

Tumour markers	Benign (n=10)				Malignant (n=4)			
	Raised	%	Normal	%	Raised	%	Normal	%
CA-125 (n=13)	4	44.4	5	55.6	4	100.0	0	0.0
CA-19.9 (n=11)	2	28.5	5	71.5	3	75.0	1	25.0
CEA (n= 11)	1	14.3	6	85.7	0	0.0	4	100.0
β-HCG (n=5)	0	0.0	2	100.0	0	0.0	3	100.0
LDH (n=5)	1	33.3	2	66.7	1	50.0	1	50.0
AFP (n= 3)	1	50.0	1	50.0	0	0.0	1	100.0

CA-125 levels were high in 100% malignant ovarian lesions but also found elevated in 44.4 % benign ovarian cystic lesions. CA 19.9 levels were high in 75 % malignant ovarian lesions but also found elevated in 28.5% benign ovarian cystic lesions.

4. Discussion

A total of 37 cases with cystic abdominal masses were included in our study. Transabdominal sonography was done in all 37 cases; with transvaginal sonography and Doppler study done wherever required. CT Scan was requested in 30 cases (of which 3 available CT Scans had been done at other institutions). MRI was available in 1 case. 25 cases were operated and histopathological examination of cystic abdominal masses was done in 24 cases. Clinical / clinico-radiological follow-up was done in 13 cases, of which 2 cases showed response to clinical therapy.

Age group of the cases ranged from 16 to 80 years. Majority of cases (26/37) i.e.70.27% were in the reproductive age group (15-44 years). Cystic abdominal masses were more commonly encountered in females (28/37) i.e. 75.67 % cases.

Pain and lump in the abdomen were the predominant complaints, in 67.5% (25/37) and 59.4% (22/37) of cases respectively .Other common complaints were weight loss (8/37) i.e. 20.8%, abdominal distension and anorexia (6/37) i.e. 16.2% each. Bleeding per vaginum was present in 3 cases, vomiting and urinary complaints were present in 2 cases each, hemetemesis and hematochezia were present in 1 case each. Other complaints found in 6/37 cases were severe headache, loss of consciousness and palpitations (1 case); breathlessness, fatigue and palpitations (1 case); giddiness and headache in 1 case; secondary infertility in 1 case and amenorrhoea in 2 cases.

A lump was palpable clinically in the majority of cases except 7. These cases presented with complaints like epigastric pain, acute pain in right iliac fossa, abdominal distension, urinary tract infection and hypertensive encephalopathy; one of the cases had come for routine

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medical examination. In these 7 cases, the cystic abdominal mass was detected incidentally on sonography.

The minimum duration of pain abdomen was 1 hour while the maximum duration was 6 years. The former was observed in a case with a clinical diagnosis of acute appendicitis in whom a radiological diagnosis of appendicular perforation was made due to fluid collection in the RIF. Dull aching pain in the abdomen was present since 6 years in a case with clinico-radiological diagnosis of cystic lymphangioma.

The duration for which a lump was present was less than 6 months in 18 out of 22 i.e. 82% cases. Mucinous cystadenoma was diagnosed in a case who presented with a lump for 5 days, while a case with splenic hydatid cyst presented with a lump of 2 years duration.

5. Conclusion

In a study comprising of 37 adults cystic abdominal masses were more commonly encountered in females i.e. 75.67 % cases and 70.0% cases were in the reproductive age group (15-44 years). Radiological diagnosis was the same as clinico-radiological diagnosis in 25/37 cases who were operated in our study.

The agreement of clinico-radiological diagnosis with pathological diagnosis and radiological diagnosis with pathological diagnosis, in distinguishing benign and malignant cystic abdominal masses in adults was the same and found to be good with Kappa value of 0.690 (95% CI; 0.37-1.00) with $P<0.01$.

6. References

1. Lee J, Park CM, Kim KA, et al. Cystic lesions of the gastrointestinal tract: multimodality imaging with pathologic correlations. Korean J Radiol. 2010;11:457-68.
2. Bhosale P, Balachandran A, Tamm E. Imaging of benign and malignant cystic pancreatic lesions and a strategy for follow up. World J Radiol. 2010;2:345-53.
3. Alcazar JL, Jurado M. Using a logistic model to predict malignancy of adnexal masses based on menopausal status, ultrasound morphology, and color Doppler findings. Gynecol Oncol. 1998;69:146-50.
4. Urrutia M, Mergo PJ, Ros LH et al. Cystic masses of the spleen: radiologic-pathologic correlation. Radiographics : a review publication of the Radiological Society of North America, Inc. 1996;16:107-29.
5. Onur MR, Bakal U, Kocakoc E et al. Cystic abdominal masses in children: a pictorial essay. Clin Imag. 2013;37:18-27.
6. 6 .Lantinga MA, Gevers TJ, Drenth JP. Evaluation of hepatic cystic lesions. World J Gastroenterol. 2013;19:3543-54.
7. Laufer MR. Adnexal masses. In: Emans SJH, Laufer MR editors. Pediatric & Adolescent Gynecology. 6th ed. Philadelphia: Wolters Kluwer Lippincott Williams & Wilkins; 2012. p. 387.
8. Koonings PP, Campbell K, Mishell DR Jr, et al. Relative frequency of primary ovarian neoplasms: a 10-year review. Obstet Gynecol. 1989;74:921-6.

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9. Garefalakis M, Ludlow JR, McCartney A et al. Tuberculous peritonitis with sonographic features of an ovarian cystadenoma. J Ultrasound Med. 2003;22:989-92.
10. Berek JS. Ovarian, Fallopian Tube, and Peritoneal cancer. In: Berek DL, editor. Berek & Novak's Gynecology. 15th ed. Philadelphia: Wolters Kluwer India Pvt Ltd; 2012. p. 1366.
11. Crofton M, Jenkins JPR. Gynaecological Imaging. In: Robinson PJA, Jenkins JPR, Whitehouse RW, Allan PL, Wilde P, Stevens JM, editors. Textbook of Radiology and Imaging, 7th ed. China: Elsevier Science Ltd; 2003. p. 1083.
12. Zhao SH, Qiang JW, Zhang GF et al. MRI in differentiating ovarian borderline from benign mucinous cystadenoma: pathological correlation. J Mag Res Imag. 2014;39:162-6.