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Original Research Article

Study of Profile of Large Abdominal Lumps in Surgery

Dr. Sudarshan Gothwal[1]*, Dr. Farukh Khan[2], Dr Manila Nainawat[3], Dr Sunil Pabri[4]
[1]Senior resident, [2]Department of General Surgery,
SMS Medical College And Hospital Jaipur, J.L.N. Marg, Near Albert Hall Museum and Ram Niwas Garden, Jaipur,Rajasthan,302004, India
[3]Senior Resident, Department of Obstetrics and Gynaecology, [4]Senior Resident, Department of General Surgery,
SMS Medical College And Hospital Jaipur, J.L.N. Marg, Near Albert Hall Museum and Ram Niwas Garden, Jaipur,Rajasthan,302004, India.

***Corresponding author**
Dr. Sudarshan Gothwal
Email: drsudarshan1267@gmail.com

Abstract: Lump abdomen has always been a challenge to surgeons. Literatures mainly mention large abdominal lumps in gynaecological conditions as of ovary and uterus. This study was done to see the profile of large abdominal lump of 10 cm or more in size presenting in surgical wards. 1.To study clinical presentation, diagnosis & management of large abdominal lumps 10cm or more in size. 2.Morbidity and mortality related to large abdominal lumps. This Hospital based observational study was conducted in the year 2012-2013 in upgraded department of general surgery SMS Hospital, Jaipur. A descriptive study for all patients with abdominal lump size 10cm or more on USG, regarding their clinical presentation, diagnosis, treatment, histopathology and complication was designed. In this study of 70 patients, majority of them were female patients (80%). 44.3% cases were presented in 20 to 40 years of age group. Majority of cases in this study were admitted with complaint of pain (89%). 58.5% patients were having 10 to 15 cm size lump (according to USG finding). Most of the large abdominal lump were of ovarian origin (35.7%). Serum CA 125 Level was performed in 27 patients and out of these, 40.74% showed CA 125 Level >35 U/ml. Sensitivity of U.S.G in detecting the nature of lump was 61.4% and sensitivity of CT scan was 92.06%. Surgery was required in 77.14% of patients. Histopathological examination revealed 51.8% patients had malignant and 37.03% had benign pathology, 7.4% and 3.7% patients had inflammatory and tubercular pathology respectively. 27.1% patients developed complication in post operative period including wound infection(10%), pneumonitis(7.1%), wound dehiscence(2.9%) and urinary retention (2.9%). 4.3% patients were expired. In this study most of the large abdominal lumps were ovarian in origin (35.7%). Serum CA 125 level proved to be diagnostic in suspected cases of ovarian carcinoma. U.S.G was most helpful in diagnosing lumps originating from uterus and ovary. It was also helpful in cases of hydatid cyst liver, pseudopancreatic cyst and cases of splenic enlargement. CT scan proved to be most useful in evaluation of retroperitoneal lesion and tumours related to gut. Overall it was diagnostic in 92.06% of large abdominal lump. FNAC proved to be diagnostic in 82% of cases in which it was carried out.

Keywords: Abdominal Lump, Computed Tomography Scan (CT scan), Fine Needle Aspiration Cytology (FNAC), Magnetic Resonance Imaging (MRI), Ultra Sonography (U.S.G)

INTRODUCTION

Abdomen is a large cavity having multiple organs. Different organs have different pathology and many times, present as lump abdomen. Lump abdomen has always been a challenge to surgeons. Large abdominal lump are still more challenging to surgeons as they carry lot of morbidity and mortality in their management. With the advent of newer investigation modality particularly CT scan and MRI it becomes easier to diagnose abdominal lumps in early stage. In our country where the sophisticated diagnostic tools are yet to reach for whole population, large abdominal lumps are frequent to be seen by surgical departments. Literatures mainly mention large abdominal lumps

associated with gynaecological condition such as of ovary and uterus.

There are not many studies to study large abdominal mass. This study was done to see the profile of large abdominal lump of 10 cm or more in size presenting in surgical wards regarding their clinical behavior, diagnosis, management and complication.

MATERIALS AND METHODS

This study was conducted in upgraded Dept. of general surgery SMS Hospital Jaipur. All patients with abdominal lump size 10cm or more on USG were studied regarding their clinical presentation, diagnosis, treatment, histopathology and complication

- Type of Study: The study was descriptive Hospital based observation study.
- Sample: Eligible cases attended surgical outdoor of SMS Hospital Jaipur during study period were included in our study population
- Time Period: The Study period was one year.

Inclusion Criteria

- All cases of Large Abdominal Lumps 10cm or more in size in USG abdomen

Exclusion criteria

- Abdominal lumps <10 cm in size
- pregnancy

OBSERVATIONS AND RESULTS

In this study of 70 patients, majority of them were female patients (80%). 44.3% cases were presented in 20 to 40 years of age group. Majority of cases in this study were admitted with complaint of pain(89%). 77.14% patients complained of lump abdomen and rest of the patients complained of loss of appetite (58.57%), vomiting(41.4%), fever (35.7%), constipation(27.1%), bleeding per vagina(22.9%), urinary symptoms (17.14%), jaundice (12.8%), and bleeding per rectum (8.6%).70% patients were having mobile lump. 58.5% patients were having 10 to 15 cm size lump (according to USG finding). 27.14% patients were having lump of 16 to 20 cm in size. Rest of the patients belongs to 21 to 25cm (10% cases) and 26 to 30 cm (5.5% cases) in size respectively.

Table-1: Percentage of Various abdominal lumps

Types of lump	Total no. of cases	%
Ovarian lump	25	35.71%
Uterine lump	4	5.70%
Retroperitoneal lesions	11	15.71%
Pancreatic lump	5	7.10%
Splenomegaly	6	8.50%
Bowel mass	3	4.20%
G.B. mass	2	2.80%
Supra renal mass	2	2.80%
Renal mass	1	1.40%
Hepatic mass	2	2.80%
Hydatid cyst liver	1	1.40%
Dermoid cyst liver	1	1.40%
Aganglionesis	1	1.40%
Abdominal wall haematoma	1	1.40%
Mesentric cyst	1	1.40%
Chondromyxoma	1	1.40%
Desmoid tumour	1	1.40%
Trichobezoars	2	2.80%

Most of the large abdominal lump are of ovarian origin (35.7%). Serum CA 125 Level was performed in 27 patients and out of 27 patients, 59.25% patients showed CA 125 Level < 35U/ml and rest of the patients (40.74%) showed CA 125 Level >35 U/ml. Sensitivity of U.S.G in detecting the nature of lump in this study was 61.4% and sensitivity of CT scan was 92.06%. Surgery was required in 77.14% of patients and remaining patients underwent palliation in the form of chemotherapy. Histopathological examination was performed in all cases those were operated and 51.8% patients had malignant pathology, 37.03% patients had benign pathology, 7.4% patients and 3.7% patients had inflammatory and tubercular pathology respectively. In

this study 27.1% patients developed complication in postoperative period, wound infection(10%), Pneumonitis(7.1%), wound dehiscence(2.9%), urinary retention(2.9%) and 4.3% patients were expired. There were no cases of intraoperative death.

During the follow up period of 15 month, 7.4% patients had sub acute intestinal obstruction and all of them were managed conservatively, 3.7% patients developed incisional hernia and 1.8% patient had recurrence following retroperitoneal tumour excision. 8 patients were lost in follow up.

Table-2: Treatment modalities

Type of lump (Total no. of cases)(70)	**Surgical(54)**
Ovarian lump(25)	TAH+BSO(4);BSO + Omentectomy(1); Cystectomy (2); Debulking surgery (2); Oopherectomy (8); omental/peritoneal biopsy(2)
Uterine lump(4)	TAH+BSO(4)
Retroperitoneal lesions(11)	Excision(10)
Pancreatic lump(5)	Cystogastrostomy (2)
Splenomegaly(6)	Splenectomy (5)
Bowel mass(3)	Resection anastomosis (3)
G.B. mass(2)	Open cholecystectomy (1)
Supra renal mass(2)	Excision(2)
Trichobezoars(2)	Excision(2)
Hepatic mass(2)	-
Renal mass(1)	-
Hydatid cyst liver(1)	Excision(1)
Dermoid cyst liver(1)	Excision(1)
Aganglionesis(1)	Colonic lavage with colostomy(1)
Abdominal wall haematoma(1)	-
Mesentric cyst(1)	Excision(1)
Chondromyxoma (1)	Excision(1)
Desmoid tumour(1)	Excision(1)

Table-3: Histopathology of various lumps

Type of lump	**No. of cases(70)**	**Histopathology(54)**	**Remarks**
Ovarian lump	25	Benign=10,Malignant=12 Tubercular=2	Tubercular ovarian mass(2), dermoid cyst(2)
Uterine lump	4	Benign = 4	-
Retroperitoneal lesions	11	Benign=2,Malignant=8	Retroperitoneal haematoma(1), Retroperitoneal cyst(2)
Pancreatic lump	5	-	-
Splenomegaly	6	-	-
Bowel mass	3	Malignant=3	-
G.B. mass	2	Malignant=2	-
Supra renal mass	2	Benign=2	Pheochromocytoma(2)
Trichobezoars	2	-	-
Hepatic mass	2	Malignant=2	-
Hydatid cyst liver	1	Inflammatory=1	-
Dermoid cyst liver	1	Inflammatory=1	-
Aganglionesis	1	Inflammatory=1	-
Abdominal wall haematoma	1	Inflammatory=1	-
Mesentric cyst	1	-	-
Chondromyxoma	1	Benign=1	-
Renal mass	1	Malignant=1	-
Desmoid tumour	1	Benign=1	-

DISCUSSION

In this study of 70 patients, majority of them were female patient (80%) rest of the patients were male (20%). Since adenexal and ovarian mass were taken into account in study and most of the massive abdominal lumps were related to ovary, so majority of patients in study were females. 44.3% cases were presented in 20 to 40 years of age group.

Majority of cases in this study were admitted with complaint of pain (89%). 77.14% patients complained of lump abdomen and rest of the patients complained of loss of appetite(58.57%), vomiting (41.4%), fever (35.7%), constipation (27.1%), bleeding per vagina (22.9%), jaundice (12.8%), and bleeding per rectum(8.6%). *Goff BA, Mandel L et al.* [1, 3] in a study including 1752 ovarian cancer patients concluded that out of 95% of patients in their study, 77% had abdominal symptoms, 70% gastrointestinal, 50% constitutional, 58% pelvic pain and 38% had urinary symptoms.

Abdominal pain was the most common presentation in their study, but was not statistically different, whereas other studies have reported more association with malignant disease. Bankhead C, Collins C *et al.* [1,2] in their study of 124 patients of ovarian lump abdominal distension, early satiety, indigestion, vomiting, loss of appetite, feeling hotter than usual were main symptoms.

In this study clinical examination of lump was done to assess mobility, surface, Margin, consistency, tenderness and it was found that 70% patients were having mobile lump, 78.6% patients had smooth surface and 37.1% patients were tender lump on examination.

In this study 38.6% of patients were anaemic i.e. haemoglobin was less than 10 gm%. 23% patients (ESR more than 20mm/hr) in the study had infective etiology, 31.4% patients had deranged renal function and 63% patients had deranged liver function. *Nowrousian et al* [4] showed that more than half of women with ovarian malignancy had anaemia. Among women with advanced ovarian malignancy Groopman and Itri. J [4] showed that 44% patients had mild to moderate anaemia and 14% had severe anaemia. In this study 27 patients underwent Serum CA 125 level assessment. Out of 27 patients, 59.25% patients showed CA 125 Level < 35U/ml and rest of the patients (40.74%) showed CA 125 Level >35 U/ml. In patients with raised CA 125 level when histopathological examination was done, all of them turned out to be ovarian carcinoma, thus it indicates that raised CA125 Level is very sensitive marker associated with ovarian carcinoma. Ian J. Jacob *et al.* [5] reported that raised serum CA 125 concentration was a powerful index of risk of ovarian cancer in asymptomatic postmenopausal women, the risk in the year after a serum CA 125 concentration ≥ 100 U/ml is similar to the lifetime risk to women in high risk families. Malkasian GD Jr, Knapp RC *et al.* [6] measured CA 125 levels in 158 patients with palpable pelvic masses who were about to undergo diagnostic laparotomy. 68 patients found to have cancer were compared with the 90 patients with benign disease, those with malignancies were significantly older, were more frequently postmenopausal, and had significantly higher values of serum CA 125. X-Ray chest revealed presence of pleural effusion in 30% patients. Features of bronchitis were present in 5.7% patients and tubercular changes were present in 2.8% patients.

In this study 58.5% patients were having 10 to 15 cm size lump (according to USG finding). 27.14% patients were having lump of 16 to 20 cm in size. Rest of the patients belongs to 21 to 25cm (10% cases) and 26 to 30 cm (5.5% cases) in size respectively. In this study 35.7% of patients had ovarian lump, 15.7% patients had retroperitoneal lesion, 8.5% patients had splenomegaly, 7.1% patients had pancreatic lump, 5.7% patients had uterine fibroid, 4.2% patients had bowel mass, 2 cases(2.8%) each of trichobezoar, hepatic and suprarenal mass and one patient of each(1.4%) had hydatid cyst liver, dermoid cyst liver, abdominal wall haematoma, mesenteric cyst, chomdromyxoma, desmoids tumour and aganglionesis(Hirshprung's disease). So in the study 40% of patients had lumps related to uterus and ovaries. Out of 25 cases of ovarian lumps 44% patients had simple ovarian cyst, 40% patients had carcinoma ovary, 8% patients had dermoid cyst ovary and 8% patients had tubercular ovarian mass. All the 44% patients of ovarian cyst were correctly diagnosed with sonography abdomen. One case of dermoid cyst ovary required MRI abdomen, 8% patients of tubercular ovarian mass underwent laproscopic omental/peritoneal biopsy to come the diagnosis. Out of 70 cases, U.S.G was able to correlate with the diagnosis in 43 patients, thus the sensitivity of U.S.G in detecting the nature of lump in this study was 61.4%. Lee M.J *et al.* [7] also stated that sonography remains the primary imaging modality to screen for masses in the pelvis. It

is the ideal method also for distinguishing cystic from solid masses. Kurtz *et al.* [8] proved in ovarian malignancies, the accuracy of MR imaging (0.91) was higher than that of CT and significantly higher than that of USG (0.78). In extraovarian spread of ovarian malignancy, the specificity of conventional US (96%) was higher than that of CT and significantly higher than that of MR imaging (88%), whereas the sensitivities of MR imaging (98%) and CT (92%) were significantly higher than that of conventional US (75%). All the 4 cases of uterine fibroids in this study were correctly diagnosed by ultrasonography. In a study by Kim YS [9], he showed that USG has a sensitivity of 60%, a specificity of 99%, and an accuracy of 87% whereas MRI has a sensitivity of 86-92%, a specificity of 100%, and an accuracy of 97% in the evaluation of fibroids.

Out of 63 patients, CT scan was able to correlate with the diagnosis in 58 cases thus the sensitivity of CT scan in detecting the nature of lump in this study was 92.06%. Cooperman AM [10] studied the role of U.S.G and CT scans in pseudocyst pancreas. He showed abdominal CT scanning and US are highly sensitive and specific for the diagnosis of a pancreatic pseudocyst. CT has a sensitivity of 90-100% in the detection of these lesions. The major weakness of CT scan is the relative inability to distinguish pseudocyst from cystic neoplasms especially mucinous cystadenomas and intraductal papillary mucinous tumors (IPMT) [11,12]. But Cooperman clearly stated clinical history of pancreatitis along with CT scan is diagnostic of pancreatic pseudocyst. In our study out of 5 cases of pancreatic lumps, all with clinical history of pancreatitis diagnosed clinically and with the help of USG and CT scan came out to be pseudocyst pancreas. Behan, E. Ka

Granstrom P, Unger E *et al.* [13,14] stated that Computed tomography (CT) is the most useful tool in the evaluation of retroperitoneal tumors. A high-quality magnetic resonance image (MRI) can be difficult to obtain, whereas CT is less sensitive to motion artifacts. In a review of techniques and interpretation of MRI in the evaluation of retroperitoneum, Granstrom and Unger emphasized the importance of axial images in addition to sagittal and coronal views. While MRI has been investigated in the evaluation of specific organs such as the pancreas and adrenal glands, large studies comparing MRI of retroperitoneal sarcomas with CT are lacking. Mitchell DG *et al.* [15] in their study of MR imaging observations at 1.5 T, with U.S.G and CT correlation and pulse sequence optimization in 35 patients found that MRI is more diagnostic confidence than U.S.G and CT Scan in uterine and adenexal masses. MA Ghossain, JN Buy [16], stated that Accuracy for overall characterization of benign versus malignant ovarian tumors was 86% with MR imaging and 92% with computed tomography. There was no difference in sensitivity (P = 1) or specificity (P = .5). Out of 17 patients in whom FNAC was performed preoperatively, histopathology in 14 patients (83%) was correctly match with FNAC findings. In a study by S. Goel *et al.* [17], they showed sensitivity and specificity of FNAC in ovarian lumps in detecting benign and malignant lesions was 85% &100% that was in concordance with other researchers viz. Nazoora *et al.* [18] [79.2% and 90.6%], *Ganjei et al* [19] [94.2% & 75%] and *Roy et al.* [20] [91.4%&100%]. In contrast, *Moran et al.* [21] in 1993, observed a very low sensitivity of 26% with high specificity of 100% in their research.

Surgery was required in 77.14% of patients. Remaining patients underwent palliation in the form of chemotherapy. TAH+BSO was done in 16% cases, BSO+Omentectomy in 4% cases, cystectomy in 8% cases, oopherectomy in 32% cases, debulking surgery in 8% cases), omental/peritoneal biopsy in 8% cases. Pirayesh A *et al* [22] reported that the single most important prognostic factor for retroperitoneal tumours was aggressive successful en bloc resection of the primary tumour and 5 year survival rates depend upon resection of tumour. In this study 3 cases of bowel mass were managed with resection anastomosis. Out of 6 cases of massive splenomegaly, splenectomy was done in 5 patients and chemotherapy was given to single patient of splenomegaly with ALL. Colonic lavage with colostomy was performed in single case of aganglionesis (hirshprung disease) and rest of the patients in this study underwent excision.

In this study histopathological examination was performed in all cases that were operated. 51.8% patients had malignant pathology, 37.03% patients had benign pathology, 7.4% patients and 3.7% patients had inflammatory and tubercular pathology respectively.

In this study 27.1% patients developed complication in post operative period, wound infection(10%), Pneumonitis(7.1%), wound dehiscence(2.9%), urinary retention(2.9%) and 4.3% patients expired. Operative

mortality was 4.3%. Two cases expired of aspiration pneumonitis and one due to haemorrhagic shock.

During the follow up period, 7.4% patients had sub acute intestinal obstruction and all of them were managed conservatively, 3.7% patients developed incisional hernia and 1.8% patient had recurrence following retroperitoneal tumour excision.8 patients were lost in follow up.

CONCLUSION

- In this study majority of patients were females (80%) and about half of patients (44.3%) presented in age group of 20 to 40 years. Pain abdomen (89%), followed by lump abdomen (77.14%) were most common symptoms.
- Though large lumps are supposed to have decreased mobility or increased fixity to other structures, in this study 78% lumps were mobile.
- About two third of patients (58.5%) had lump of size less than 15 cm. One third of patients comprised lump size of more than 15 cm.
- Majority of lumps (35.7%) were ovarian in origin followed by retroperitoneal lesion (15.7%), splenomegaly (8.5%). Rest belong to pancreas, uterus, bowel mass, hepatic, suprarenal mass, hydatid and dermoid cyst of liver. Surprisingly in only 4% of patients, lump had origin from gut which is of size more than 10 cm. Thereby bowel lumps do not make large lumps in abdomen.
- Serum CA 125 level proved to be diagnostic in suspected cases of ovarian carcinoma.
- U.S.G was most helpful in diagnosing lumps originating from uterus and ovary. It proved to be also helpful in cases of hydatid cyst liver, pseudopancreatic cyst and cases of splenic enlargement.
- CT scan proved to be most useful in evaluation of retroperitoneal lesion and tumours related to gut. Overall it was diagnostic in 92.06% of large abdominal lump in which it was carried out.
- Role of MRI could not be assessed in this study as only two cases were subjected for MRI abdomen.
- FNAC proved to be diagnostic in 82% of cases in which it was carried out.
- About 55% patients of large abdominal lump had malignant pathology. Remaining patients belongs to benign and inflammatory causes.
- Three fourth of large abdominal lumps (77.14%) which presented to us required surgery. Operative mortality was 4.3%.

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