ORIGINAL ARTICLE

Palpable Abdominal Masses in Indian Females: A Prospective Analysis

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Abstract

Background: The presentation of palpable abdominal masses (PAM) in females causes a diagnostic dilemma due to the possibility of varied origins from the gynaecological and non-gynaecological sources. In the current analysis, we focused on the evaluation of the risk factors associated with the diagnostic origin and the impact of the evaluation on therapeutic outcomes in females with PAM. **Materials and Methods:** Female participants were enrolled in gynaecology and surgery outpatient departments surgery. Analysis was performed to assess the risk factors related to the origin of PAM in the enrolled participants. **Results:** The study group included participants with PAM belonging to gynaecological origin (n=47) and non-gynaecological origin (n=33). No statistically significant difference was observed between participants with a gynaecological origin and non-gynaecological origin for PAM. In females with a gynaecological origin, the abdominal masses were observed more in the uterus and ovaries in comparison to the tubes. However, in the case of females with non-gynaecological origin, abdominal masses were observed more in the gastrointestinal tract and other places in comparison to the urinary tract. **Conclusions:** The present study highlights the need for including advanced imaging technologies supplemented with clinical history for a conclusive diagnosis and better choice of treatment.

Keywords

Abdominal Masses, Benign, Malignancy, Gynaecological Mass, Tumour

Introduction

The differentiation of malignant and benign tumours in individuals with pelvic or abdominal mass presentation still keeps gynaecologists in diagnostic confusion. [1] In relation to masses, the term 'abdominal' refers to areas that lie anterior to the paraspinal muscles in a region bordered by the costal margins, the iliac crests and the pubic symphysis. This also includes masses discovered within the retroperitoneum and the abdominal wall. [2]

The abdominal mass and pain are usually interconnected and may present simultaneously in certain instances. The abdominal pain in some cases when tracked back to its origin can provide diagnostic clues for the abdominal masses. [2] Many times pelvic masses enlarge and present as abdominal masses and at times, abdominal masses need to be differentiated from pelvic masses which can be of gynaecological and non-gynaecological origin. [1,3] The gynaecological masses may be present in either the uterine or adnexal region that comprises of broad ligament, fallopian tube, ovary and related nerve and blood supply .[4,5] On the contrary, the non-gynaecological masses arise from colon, rectum, ureter, bladder, nerves and blood vessels in pelvic region. [6]

Based on the underlying pathology of the abdominal masses, there is a variation in the clinical presentation is observed. [7] The course of evaluation in patients must include a detailed history with special focus on the gynaecological history of timing of symptoms in relation to menstrual cycle, previous and current use of contraception, any abnormal vaginal bleeding or discharge,

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an obstetric history of any previous tubal or other surgery .[2]

The present investigation was performed to evaluate the palpable abdominal masses in women. In the present analysis, (i) we assessed the origin of palpable abdominal masses in females and (ii) evaluated their correlation with the observed symptoms to identify the risk factors that are suggestive of abdominal masses in future and can further aid in choosing an appropriate treatment path for the females.

Materials and Methods

The present study followed prospective study design. All procedures and protocols of the study were approved by Institutional Ethics Committee, Govt. Medical College, Kathua, J and K, India (IEC/GMCK/28/Pharma). The investigation was initiated with the enrolment of the females who presented palpable abdominal masses at the outpatient departments of Govt. Medical College, Kathua from August 2019 to January 2020. The inclusion criteria for the females included in the study is presentation of palpable abdominal and pelvis masses in surgical and gynaecological OPDs irrespective of age, marital status, parity, symptomatology, and previous histories. Pregnant females were excluded from the study.

The clinical evaluation included a record of detailed patient history with emphasis on age, parity, religion, socio-economic status, marital status, menstrual history, obstetric history, family history, history of contraception methods, previous medical and surgical history and symptomatology with special reference to bowel, genitourinary and pressure symptoms. Further, the clinical evaluation included the general physical examination followed by inspection, palpation, percussion, auscultation, per speculum, per vaginum and per rectal examination.

With the aim to obtain the correct diagnosis, we also performed imaging analysis and evaluated tumour markers. Histopathological examination (HPE) was performed for tissue diagnosis in appropriate cases to confirm the diagnosis.

The individuals undergoing surgery were also evaluated for intraoperative features like morphology, origin, size and number of masses, gross and cut-section appearance and secondary changes. The HPE was performed using the specimen to identify the excised lesion's nature and to predict the disease outcome.

All statistical analyses were performed using GraphPad software (https://www.graphpad.com/quickcalcs/). Fisher exact test and chi-square analysis were performed at a p-value threshold of 0.05.

Results

A total of 80 participants were enrolled in the study. The participants were divided into two groups based on the origin namely cases in the gynaecological origin group (n=47) and cases in the non-gynaecological origin group (n=33) arising from the urinary tract, gastro-intestinal tract and others like psoas abscess, ventral hernia and hydatid cyst. None of the patients with masses of non-gynaecological origin had malignancies. In the present study, the age of the patients ranged from 17 to 63 years. The majority of cases were from the 35-44 years age group (42.5%). The age group 25-34 years had an equal incidence of 28.75%, 15-24 years had an incidence of 12.5%, the 45-54 years age group had an incidence of 11.25%, and 55-65 years had an incidence of 5% (table 1). There was no significant difference observed with the increasing age and the presence of abdominal masses in gynaecological or non-gynaecological group females. In this study, more than half of the women enrolled were multiparous (55%), 8.75% women were unmarried and 12.5% were nulligravida and 23.75% were nullipara. There was no significant difference in the parity of females between the gynaecological and non-gynaecological groups.

Further analysis was performed for the socio-economic status of the females in the gynaecological and non-gynaecological groups. It was observed that the majority of the patients presenting to outpatient department were from low socio-economic status (73.75%) and 21.25% were from the middle class and 5% were from high socio-economic status (*table 1*).

The clinical history was also evaluated for all the participants enrolled in the study. This included history of nausea, vomiting, general symptoms, abdominal distension, lump, pain, diarrhoea, urinary symptoms, pelvic pain, bleeding PV, and backache. Among these symptoms, an abdominal lump was the most common symptom observed in 52.5% of the females, followed by abdominal distension which was observed in 27.5% of the females. There were 50% of the participants could appreciate their lump themselves. Abdominal pain was observed in 20% of the participants, and urinary symptoms, pelvic pain and bleeding PV were observed in 12.5% of females (*table 1*). Gastrointestinal symptoms of nausea, vomiting and diarrhoea were noticed in about 13.75% of the patients. A comparative analysis was performed between gynaecological and non-gynaecological groups to highlight the differences in clinical symptoms and it was observed that the abdominal distension and general symptoms vary significantly between the two study groups (table 1).

Among the gynaecological masses in 48.9% (n=23) of patients, the mass arose from the uterus out of which 8 females had malignancy diagnosed as Cervix stage-II

Table 1. Clinical characteristics of the study participants

Demographs	Cases in gynaecological origin group (n=47)	Cases in non-gynaecological origin group (n=33)	p-value
Age (in years)			
15-24	6 (12.7%)	4 (12.1%)	Reference
25-34	14 (29.7%)	9 (27.2%)	1.00
35-44	21 (44.6%)	13 (39.3%)	1.00
45-54	4 (8.5%)	5 (15.1%)	0.65
55-64	2 (4.2%)	2 (6.06%)	1.00
Parity			
Unmarried	3 (6.3%)	4 (12.1%)	Reference
Nulligravida	6 (12.7%)	4 (12.1%)	0.6
Nullipara	12 (25.53%)	7 (21.1%)	0.4
Multipara	26 (55.31%)	18 (54.5%)	0.44
Socio-economic status			
Low	38 (80.85%)	21 (63.6%)	Reference
Middle	8 (17.02%)	9 (27.2%)	0.26
High	1 (2.12%)	3 (9.09%)	0.15
Clinical symptoms			
Nausea, vomiting	4 (8.5%)	2 (6.06%)	1.00
Gen	9 (19.1%)	0 (0%)	0.008*
Distension	17 (36.1%)	5 (15.1%)	0.04*
Lump	28 (59.5%)	14 (42.4%)	0.17
Pain	9 (19.1%)	7 (21.1%)	1.00
Diarrhoea	3 (6.3%)	2 (6.06%)	1.00
Urinary symptoms	7 (14.8%)	3 (9.09%)	0.5
Pelvic pain	8 (17.02%)	2 (6.06%)	0.18
Bleeding PV	7 (14.8%)	3 (9.09%)	0.5
Backache	7 (14.8%)	1 (3.03%)	0.13

*p-value < 0.05 was considered as statistically significant

Table 2. Site of origin of abdominal masses

Demographs	Benign	Malignant	p-value
Gynaecological origin (n=47)			
Uterus	15	8	
Ovary	10	11	0.47
Tubes	2	1	
Non-gynaecological origin (n=33)			
Urinary tract (ectopic kidney)	3	-	-
Gastro-intestinal	11	-	
Others	19	-	

*p-value < 0.05 was considered as statistically significant

with pyometra. The ovarian mass was found in 44.6 % (n=21) of patients out of which 10 patients (21.2%) presenting with benign and 11 (23.4%) with malignant ovarian masses (*table 2*).

In our study, most of the patients (n=60) had benign masses (75%) and 19 patients (23.75%) had malignancy. Among the females with malignancy, 17.02% females presented with malignancy of uterus and 23.4% with malignancy of ovary. In cases of non-gynaecological origin, one patient diagnosed as ectopic kidney was managed conservatively.

Out of 80 females included in the present study, 64 females underwent surgery for management (80%), out of which eleven females were diagnosed with ovarian malignancy,

Table 3. Management of the Abdominal Masses in the Study Population

Management of cases	Total no. of patients (n = 80)	
Surgically managed	64	80%
Chemotherapy	4	5%
Radiotherapy	3	3.75%
LAMA	2	2.5%
Death	4	5%
Conservative	3	3.75%
Treatment of surgical cases	**Total no. of patients (n = 64)**	
Total abdominal Hysterectomy	8	12.5%
Total abdominal Hysterectomy with Bilateral Salpingo	14	21.8%
Myomectomy	3	4.68%
Ovarian Cystectomy	7	10.9%
Hernioplasty	13	20.3%
Excision of mesentric Cyst	3	4.68%
Exp. Laparotomy with drainage of psoas abscess	4	6.25%
Excision of hydatid cyst	5	7.81%
Appendicular lump	7	10.9%

four had chemotherapy, four females died due to their advanced disease with complications at presentation. Two left against medical advice. Three females presented with CA cervix with pyometra (Stage-III) had radiotherapy, and conservative management was done in three patients with ectopic kidneys presenting with pain in the abdomen (*table 3*).

In the present study, among the patients surgically managed (80%) (64), 14 (21.8%) patients underwent total abdominal hysterectomy (TAH) with bilateral salpingo (BSO), while 8 (12.5%) patients underwent TAH and 3 females (4.68%) underwent myomectomy to presume fertility and menstrual function because of young age while 7 patients (10.9%) had ovarian cystectomy. Mesh hernioplasty was done in 13 patients (20.3%). Excision of mesenteric cyst in 3 (4.68%), excision of hydatid cyst in 5 patients (7.81%) and Exploratory Laparotomy with drainage of psoas abscess in 4 patients (6.25%) were done. 7 patients (10.9%) presenting with appendicular lumps were managed conservatively followed by interval appendectomy (*table 3*). The postoperative period was uneventful for all the patients.

Discussion

The presence of abdominal masses is common in females. These often surface as incidental observations during imaging. However, the correct diagnosis of these masses with image features alone can be quite challenging for clinicians. Hence, there is a need to supplement the imaging data with detailed clinical history and additional evaluations to arrive at the final diagnosis. [8] In the present analysis, a total of 80 females from the Northern part of India were evaluated. Nearly 58% of the females presented abdominal masses with gynaecological origin whereas the remaining females present abdominal masses that were of non-gynaecological/surgical origin. The categorization of abdominal masses is usually made on the basis of the composition of the mass and the analysis of the image. However, it is important to evaluate the history of the patient before arriving at a correct diagnosis. The commonly observed abdominal masses comprise of endometriomas, lipomas, sarcomas, metastases and desmoid tumours.[8]

In our population, we observed 75% of cases with benign masses in comparison to 25% with malignant masses. In 2016, Mathur P *et al* [9] performed an investigation in Central India and observed that 83.33% of females had benign tumours whereas 16.66% of females had malignant tumours. Earlier investigations in 2000 by Ahmed *et al* [10] highlighted that the incidence of benign tumours was 59.2% and malignant tumours were 40.8%. In the present study, the patient ages ranged from 17 to 63 years and the majority of cases were below 45 years of age (83.75%) showing a higher incidence in the pre-menopausal age group. These findings are similar to the incidence shown by a study conducted by Bhagde et al [11] in 2017.

Mathur P *et al* [9], the range of age was 15-70 years. Also in our study, the youngest patient with a malignant tumour was 17 years and the oldest was 63 years and the maximum incidence was found between 25-45 years. Similar findings were also reported in studies done by Bhattacharya *et al* [12] where the youngest patient was 10 years old and the oldest was 73 years.

Around the world, the uterine fibroid incidence is

observed to be 4.6-68.6%, among which 15-25 million fibroid sufferers are Indian females. [13, 14] Parity has been considered as a risk factor for uterine fibroid in the past .[15] We evaluated if parity can be considered as risk factor for abdominal masses with gynaecological origin. However, we could not find any significant difference between parity of cases in abdominal masses with the gynaecological origin and non-gynaecological origin. Nearly half of the females enrolled in the investigation were multiparous and very few were unmarried females. The majority of the females enrolled in the study were illiterate and belonged to rural areas. This signifies their ignorance, casual approach, lack of access and carelessness towards women's health. The delay in seeking the medical care was due to negligence on the part of the patient rather than accessibility to health care. Various clinical symptoms have been associated with abdominal masses. The main presenting complaints were non-specific abdominal lump and sometimes pain as also described by P. Pathiraja in a book Gynecology for Low Resourced Location .[16] Pelvic pain was found in 12.5% of patients and disturbed menstrual cycles also in 12.5% of patients. It was the menorrhagia and feeling of abdominal fullness that prompted the patients to reach medical care.

The females from the Northern part of India presented with huge, abdominally palpable, symptomatic masses which may account to illiteracy, poverty and negligent approach towards the health of the women. Hence, interval health check-ups and screenings should be done at hospitals and rural health camps.

The abdominal masses should be approached through a methodical, systematic, standardized approach based on the knowledge and understanding of the abdominal anatomy. Apart from clinical examinations, ultrasonography is one of the most important non-invasive investigations giving a lead towards the diagnosis though the majority of these masses are benign in patients suspected of malignancy, tumour markers and imaging should be done, and definitive treatment should be followed without delay. As already advised by various investigators that in the case of a diagnostic dilemma, one should not be hesitant in seeking an opinion from onco-surgeon. Timely diagnosis and target-specific management and treatment are essential for better prognosis and outcome.

Conclusion

The present work suggests that detailed clinical history along with imaging and histopathology analysis is required for appropriate diagnosis. There is no clear distinction between the gynaecological origin and the non-gynaecological origin of abdominal masses. Hence, gynaecologists and other clinicals may need to employ advanced methods for evaluation to arrive at a diagnosis and a better choice of treatment.

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Conflicts of Interest

There are no conflicts of interest.

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