

A Study on Computed Tomography Evaluation of Abdominal Mass

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Abstract

The study explored the pivotal role of CT scans in the assessment of posterior abdominal wall masses and suspected intra-abdominal neoplasms. The research aimed to determine the capability of CT scans to differentiate various types of abdominal masses and to identify the most common masses within the abdomen. Clinical symptoms of patients were investigated, revealing common presenting symptoms as well as asymptomatic cases. The research underscored the importance of CT scanning with intravenous and enteral contrast in evaluating abdominal masses, showcasing its effectiveness in assessing local disease extent, distant metastases, and lesion nature. Specific cancer types such as pancreatic and gastric cancers were examined, and the role of CT scans in diagnosis and evaluation were discussed. The findings emphasized the diagnostic precision multi-planar images and their contribution to assessing tumor extension, anatomical relationships, and metastases. The research established CT scans as a valuable tool in the initial evaluation of abdominal masses, with further guidance on specific imaging techniques for different organs. Overall, this study underscored the indispensable role of CT scans in the differentiation and evaluation of abdominal masses, contributing significantly to the clinical management of patients.

Key words: computed tomography; evaluation; abdominal mass

Introduction

An abdominal mass is any localized enlargement or swelling in the human anatomy. Depending on its location, the abdominal mass may be caused by a hepatomegaly, splenomegaly, a pancreatic mass an abdominal aortic aneurysm or various tumors, such as those caused by abdominal carcinomatosis and omental metastasis.¹ Ultrasonography is still the baseline investigation of choice in the initial diagnosis of the abdominal masses. Computed Tomography improves the accuracy of the primary findings of sonography with exact localization and origin of site of abdominal mass.² It also helps in determining the nature of lesion whether solid or cystic.³ Various signs and symptoms encountered with abdominal masses are pain in abdomen, awareness of mass, fever, dysuria, hematuria, jaundice, weight loss, bowel disturbance & menstrual irregularities etc. Modalities used for the investigation of abdominal masses are Plain X-Ray Abdomen which identifies only soft tissue shadow or any calcification if present; IVP used for evaluating renal masses, Barium studies for gastrointestinal masses, Ultrasonography, Computed Tomography and MRI. Computed tomography (CT) at present, helical (spiral) CT is the most

efficient and cost-effective imaging modality for the evaluation of abdominal masses.

Methods

The study was prospective descriptive cross-sectional study. The study was conducted at National institute of research and cancer hospital (NIRCH) Dhaka, Bangladesh. The research was conducted among 70 older patients referred to national institute of research and cancer hospital radiology department for imaging with the suspicion of an abdominal mass. Any abdominal CT exam was included and patients younger than 17 years' old were excluded. Patients suspected to have abdominal mass clinically and fine needle aspiration cytology, biopsy, and /or other operative procedure for comparison. We further evaluated with CT. A total 70 patients were evaluated by CT scan, which was granted throughout the period. The CT examination was performed on Toshiba 160 slice. Patients were first scanned supine position and relaxed expiration phase.

Results

Age	Frequency	Percent
20-40	16	23.2
40-60	35	50.7
60-80	18	26.1
Total	70	100.0

Table 1: Age.

Gender	Frequency	Percent
Male	37	52.9
Female	33	47.1
Total	70	100.0

Table 2: Gender.

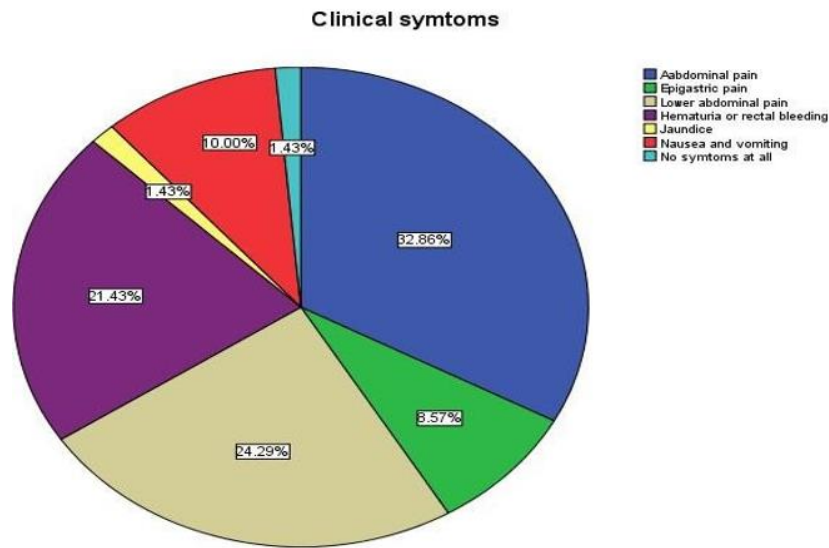


Figure 1: Clinical symptoms.

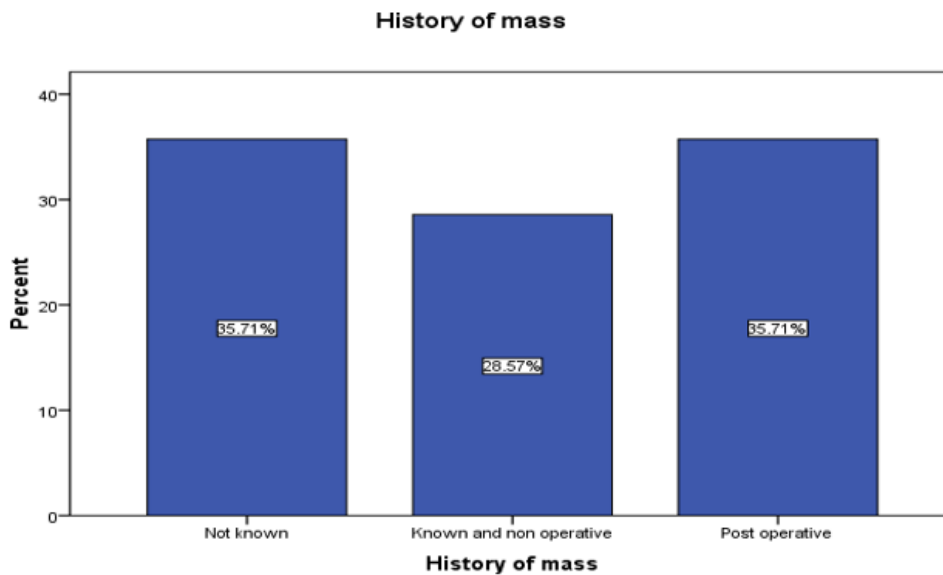


Figure 2: History of mass.

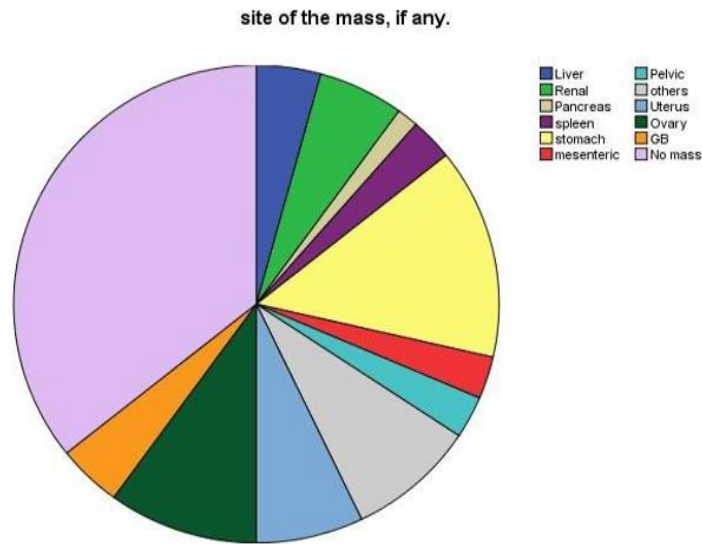


Figure 3: Site of mas.

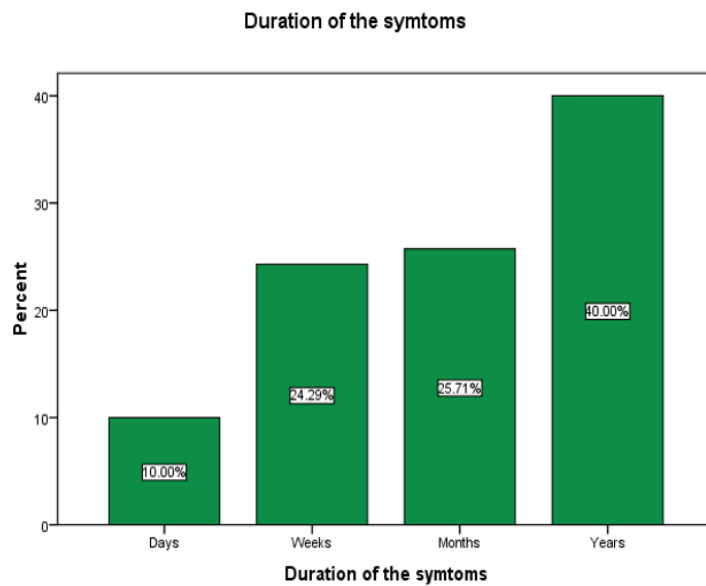


Figure 4: Duration of symtoms.

Organ	Frequency	Percent
Liver	4	5.7
Renal	5	7.1
Spleen	3	4.3
stomach	11	15.7
Mesenteric	3	4.3
Pancreas	2	2.9
Uterus	4	5.7
Ovary	6	8.6
Pelvic	7	10.0
Others	8	11.4
GB	2	2.9
Normal	15	21.4
Total	70	100.0

Table 3: CT scan findings among the different organs in the abdomen.

Discussion

This study indicates that abdominal masses are more common among men. Risk factors for various cancers vary. Some risk factors, such as smoking, can be modified. Others, such as a person's age or family history, are unchangeable. Age is one of the non-modifiable risk factors of abdominal cancer. Although abdominal masses can occur at any age, the risk goes up as a person gets older. This study indicates the most common people diagnosed with abdominal cancer were in their 40s to 60s. In this study of 70 patients, the most common presenting symptoms included abdominal pain, weight loss, and abdominal pain. Epigastric fullness, nausea, loss of appetite, dyspepsia, Hematuria or rectal bleeding, and mild gastric discomfort may also occur. While some participants were asymptomatic. Surgeons and other interventional is now prefer CT scanning with intravenous and enteral contrast when evaluating patients with abdominal masses. This imaging allows for careful examination of abdominal and pelvic structures due to its usefulness in determining the degree of local disease, the locations of distant metastases, and the nature of the lesion. When it comes to diagnosing abdominal masses, computed tomography is the most reliable method. It is crucial to combine the analysis of multi-planar, Vessel Probe, and three-dimensional reconstructions with the axial image examination. Widespread use of multi-planar images improves diagnostic precision for assessing tumor extension, and anatomical relationships with neighboring organs, and makes it easier to spot lymph nodes and distant metastases. Out of a total of 70 participants, 15 are considered to be normal, while the remaining

participants indicated various abdominal masses. The most common frequency of the study findings was gastric cancer followed by pelvic masses. The undifferentiated type, which is more common, occurs more frequently in women and has a poorer prognosis. Gastric adenocarcinoma occurs either proximally (cardia) or distally (non-cardia). On CT, the use of oral contrast agents to distend the stomach is essential, preferably with water rather than dilute gastro graff in to avoid beam-hardening artifacts.

Conclusion

In conclusion, this research highlights the pivotal role of CT scans in the assessment of posterior abdominal wall masses and suspected intra-abdominal neoplasms. The study's findings demonstrate that CT scanning is a reliable method for diagnosing and differentiating various types of abdominal masses.

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