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To assess small bowel lesions in adult population: A CT scan study

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Abstract

Background: Lesions of small bowel pose great difficulty in patients. The present study was conducted to assess small bowel lesions using CT scan in adult population.

Materials & Methods: The present study was conducted on 52 patients of suspected small bowel lesions of both genders. Clinical examination, location of lesions, presence of attenuation, degree, symmetry and extent of bowel wall thickening, presence of fat stranding, lymphadenopathy etc. were recorded. All patients underwent CT scan using Toshiba Aquillion CT scanner (16 slice).

Results: Out of 52 patients, males were 30 and females were 20. In males, 24 lesions were benign and 6 were malignant. In females, 18 lesions were benign and 4 were malignant. The difference was non-significant ($P > 0.05$). Lesions were seen in deudenum in 10, ileum in 28 and jejunum in 14. 24 benign lesions showed homogenous attenuation, 18 displayed heterogeneous stratified attenuation and 10 malignant lesions had heterogeneous mixed attenuation. The difference was significant ($P < 0.05$).

Conclusion: The most of the lesions were present in ileum followed by jejunum and deudenum. Most of the lesions were benign in nature.

Keywords: CT scan, Deudenum, Small bowel

Introduction

Lesions of small bowel pose great difficulty in patients. The normal small-bowel wall is thin, measuring between 1 and 2 mm when the lumen is well distended. However, the thickness of the normal small-bowel wall varies slightly depending on the degree of luminal distention.¹ As a result, different criteria have been used to diagnose small-bowel wall thickening. When the lumen of the small bowel is distended, the wall is often not seen. If the bowel is partially collapsed, the wall measures between 2 mm and 3 mm with symmetric thickness².

Early detection of the neoplasm of small bowel is a highly desirable but a very challenging task for the clinicians as well as radiologists. Multidetector Computed Tomography (MDCT) has lead to a vast improvement in the depiction as well as characterization of the small bowel wall lesions especially differentiation of benign and malignant lesions. Thickening of the bowel wall may present as a focal, segmental or diffuse thickening³.

Differential diagnosis of cases with focal thickening is narrowed down by the assessment of degree and symmetry of the bowel wall thickening and study of perienteric abnormalities. Malignant lesions are usually associated with focal thickening which is heterogeneous and asymmetric, whereas benign conditions and well differentiated tumors are usually associated with symmetric regular and homogeneous thickening⁴. The present study was conducted to assess small bowel lesions using CT scan in adult population.

Materials & Methods

The present study was conducted in the department of Radiodiagnosis. It comprised of 52 patients of suspected small bowel lesions of both genders. All were informed regarding the study and written consent was obtained. Ethical clearance was taken prior to the study.

General data such as name, age, gender etc. was recorded. Clinical examination, location of lesions, presence of attenuation, degree, symmetry and extent of bowel wall thickening, presence of fat stranding, lymphadenopathy etc. were recorded. All patients underwent CT scan using Toshiba Aquillion CT scanner (16 slice). Results thus obtained were subjected to statistical analysis. P value less than 0.05 was considered significant.

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Results

Table I: Distribution of patients

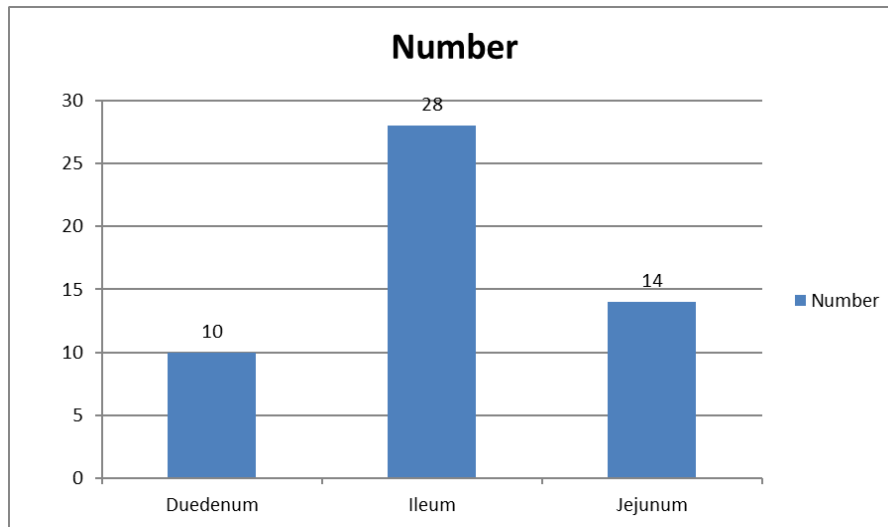
Total- 52		
Gender	Males	Females
Number	30	22

Table I shows that out of 52 patients, males were 30 and females were 20.

Table II: Nature of lesion

Nature	Males	Females	P value
Benign	24	18	
Malignant	6	4	

Table II shows that in males, 24 lesions were benign and 6 were malignant. In females, 18 lesions were benign and 4 were malignant. The difference was non-significant ($P > 0.05$).



Graph I: Location of lesion

Graph I shows that lesions were seen in duodenum in 10, ileum in 28 and jejunum in 14.

Table III: CT findings

CT findings	Benign	Malignant	P value
Homogenous Attenuation	26	0	0.04
Heterogeneous Stratified Attenuation	18	0	0.01
Heterogeneous Mixed Attenuation	0	10	0.01

Table III shows that 24 benign lesions showed homogenous attenuation, 18 displayed heterogeneous stratified attenuation and 10 malignant lesions had heterogeneous mixed attenuation. The difference was significant ($P < 0.05$).

Discussion

Malignant lesions can present with homogeneous attenuation of the thickened segment on contrast-enhanced CT. In cases of malignant lesions, homogeneous attenuation correlates with size of the tumor [5]. Thickening of the small bowel wall may be a neoplastic or nonneoplastic condition. Neoplasms are usually short, asymmetric, and they tend to have a chronic onset. In contrast, non-neoplastic small-bowel wall thickening is usually long, uniform, and circumferential, with either an acute onset or a chronic onset [6].

On contrast-enhanced CT scans, the chronic onset diseases, those lesions may have any of three appearances: homogeneous soft-tissue attenuation and enhancing white attenuation pattern or poorly enhancing gray attenuation pattern. Two concentric rings of inner low attenuation and outer high attenuation double halo sign and three concentric

rings of high-low-high attenuation the target or “water-halo” sign [7]. The present study was conducted to assess small bowel lesions using CT scan in adult population.

In this study, out of 52 patients, males were 30 and females were 20. In males, 24 lesions were benign and 6 were malignant. In females, 18 lesions were benign and 4 were malignant. Macari *et al.* [8] found that duodenum was most common location for malignant lesions. Ileum (43.5%) was the most common location for benign lesions. The malignant lesions showed heterogeneous mixed attenuation (100%), marked thickening (66.7%) and asymmetric thickening (100%). Benign lesions showed homogenous attenuation (89.1%), mild thickening (93.5%) and symmetrical thickening (97.8%). Focal thickening was seen in most of the malignant lesions (66.7%) while segmental involvement was seen in most of benign lesions (93.5%). All malignant lesions were associated with adjacent fat stranding. Amongst benign lesions, surrounding fat stranding was absent in 71.7% cases.

We observed that lesions were seen in duodenum in 10, ileum in 28 and jejunum in 14. 24 benign lesions showed homogenous attenuation, 18 displayed heterogeneous stratified attenuation and 10 malignant lesions had heterogeneous mixed attenuation. Minardi *et al.* [9] found that in which 62 cases were male and 60 cases female, with age group between the age 20 to 80-years-old, with mean age 52.7. The main clinical symptoms were malaise, pain in abdomen, anorexia, loss in weight. Of the total 122 cases, in 50 cases there was involvement of small bowel while in 72 cases were involved in large intestine. Certain lesions which extended towards the adjacent segment of bowel were classified into the category where the major length of abnormal involvement was seen.

Desai RK *et al.* [10]. study evaluated CT presentation with

respect to symmetry of intestinal wall thickening and reported that malignant lesions often presented with focal asymmetric wall thickening whereas, benign lesions often presented with symmetric thickening.

Conclusion

Authors observed that most of the lesions were present in ileum followed by jejunum and deudenum. Most of the lesions were benign in nature.

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