

ROLE OF COMPUTED TOMOGRAPHY IN DIFFERENTIATION BETWEEN SIGMOID COLON DIVERTICULITIS AND CANCER

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INTRODUCTION

Computed tomography (CT) has been suggested as the primary diagnostic technique for diverticulitis. because of the advantages it provides including non-invasiveness, direct visualization of pericolic inflammatory process, and ability to assess the severity of disease and its complications by a single examination. The primary challenge in diagnosing diverticulitis is ruling out the possibility of an underlying neoplastic process. This is crucial because treatment for diverticulitis and colon cancer differ greatly, and avoidable surgery is advised. Diverticulitis and colon cancer are endemic in the elderly population and share similar clinical presentations and CT features.

AIM OF THE WORK

The aim of this study was to analyze the usefulness of specific diagnostic CT signs for identifying and differentiating sigmoid diverticulitis from sigmoid cancer by contrast enhanced computed tomography and correlation with histopathological data in Alexandria main university hospital.

PATIENTS AND METHODS

PATIENTS: The study was carried on (40) patients who attended to the emergency department in Alexandria main university hospital from December 2022 till March 2024.

METHODS: All patients were subjected to: Full history taking [Demographic data (age, sex and occupation), general medical history and associated comorbidities, smoking history and drug history, presence of chronic diseases, and history of the current disease (onset, course and duration) with special attention to: Cramps and lower abdominal pain mainly pelvic and left sided, abdominal distention, inability to have a bowel movement, inability to pass flatus or faeces, rumbling bowel noises (borborygmus) or loud bowel noises, vomiting, bleeding per rectum, and diarrhea)], full clinical examination, complete physical examination [General examination with comment on general state of the body and signs of metastasis (if present), and local abdominal examination including peritoneal signs; tenderness, guarding and rebound tenderness], laboratory investigations [Complete blood count, serum electrolytes,

kidney function tests, and inflammatory markers as CRP], MDCT; pre and post contrast examination, routine non contrast abdominal CT scan, contrast enhanced computed tomography (CE-CT), and neutral enema if accessible. Patients had been divided in two groups according to the CT findings:

- Findings matching sigmoid diverticulitis.
- Findings matching with sigmoid cancer

RESULTS

The study included 40 patients who presented with either lower abdominal pain, bleeding per rectum or absolute constipation. Cases were divided into two groups according to the diagnosis; sigmoid diverticulitis group included 16 cases and sigmoid cancer included 24 cases.

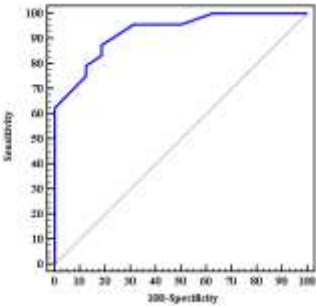


Figure 1: ROC curve for mural thickness (mm) to discriminate patients with sigmoid cancer (n=24) from Sigmoid diverticulitis® (n = 16)

Table 1: Diagnostic performance for mural thickness (mm) to discriminate patients with sigmoid cancer (n=24) from Sigmoid diverticulitis® (n=16)

	AUC	P	95% C.I	Cut off	Sensitivity	Specificity	PPV	NPV
Mural thickness (mm)	0.928	<0.001*	0.853–1.000	>10	87.50	81.25	87.5	81.2

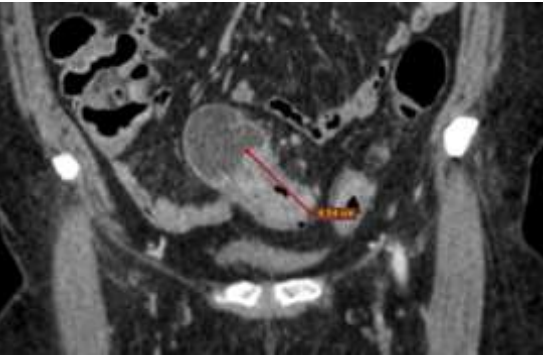


Figure 2: Coronal post contrast CT image showed short segment of irregular circumferential sigmoid colon mural thickening suggestive of sigmoid cancer.

Table 2: Agreement (sensitivity, specificity and accuracy) forLength of affected segment to discriminate patients with sigmoid cancer (n = 24) from Sigmoid diverticulitis® (n = 16) for total cases (n = 40)

	Pathology				Sensitivity	Specificity	PPV	NPV	Accuracy
	Sigmoid Diverticulitis (n = 16)		Sigmoid cancer® (n = 24)						
	No.	%	No.	%					
Length of affected segment									
Long	16	100.0	12	50.0	50.0	100.0	100.0	57.14	70.0
Short®	0	0.0	12	50.0					
χ² (F _E p)	11.429*(0.001*)								

CONCLUSIONS

Differentiating between sigmoid diverticulitis and cancer is crucial, especially in the elderly, due to their similar clinical presentations and imaging characteristics. Here’s a summary of the key points for differentiation:

Sigmoid Diverticulitis (Specific CT Findings):

- Presence of inflamed diverticula.
- Disproportionate paracolic fat stranding.
- Smooth, concentric, relatively mild colonic wall thickening with submucosal edema.
- Length of the involved segment is usually longer than 5 cm.
- Notable fluid accumulation at the root of the sigmoid mesentery.

Sigmoid Cancer (Specific CT Findings):

- Irregular, eccentric enhancing thickening of the wall more than 10 mm in thickness.
- Evidence of shouldering.
- Associated with pathologically enlarged paracolic lymph nodes.