

Role Of Capsule Endoscopy In Small Bowel Exploration: Experience From A Tertiary Center

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Abstract

Capsule endoscopy (CE) represents a major breakthrough in the exploration of the small intestine, a segment that has long been difficult to access. This study aims to assess the contribution of CE in a tertiary care setting. We conducted a prospective and descriptive study between May 2023 and December 2023, including 34 patients who underwent CE at the University Hospital of Tangier.

The main indications were obscure gastrointestinal bleeding and iron deficiency anemia. Lesions were detected in 67% of cases, with angiodysplasias being the most frequent findings.

The diagnostic yield was high for obscure bleeding, but low for Crohn's disease and celiac disease. No adverse events were reported.

CE proves to be a safe, non-invasive, and effective diagnostic tool for selected clinical indications.

Keywords: Capsule endoscopy, gastrointestinal bleeding, small intestine, iron deficiency anemia,

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I. Introduction

Capsule endoscopy (CE) has revolutionized the exploration of the small intestine. It provides a complete and non-invasive visualization of the small bowel, overcoming the limitations of conventional endoscopic techniques.

This study aims to evaluate the role of CE in our clinical practice.

II. Materials And Methods:

This was a prospective and descriptive study conducted within the Department of Hepato-Gastroenterology at the Mohammed VI University Hospital of Tangier over a period of 18 months, from May 2023 to December 2023.

It included all patients with indications justifying a CE procedure (obscure gastrointestinal bleeding, suspected Crohn's disease, unexplained iron deficiency anemia, suspected small bowel tumors, enteropathies...) explored using a PillCam® SB3 small bowel capsule. Data were collected from patient registers and medical records and analyzed using Excel software.

III. Results:

Out of a total of 34 capsule endoscopies performed, 24 patients (73%) had unexplained gastrointestinal bleeding, including 14 patients (58%) with overt bleeding and 10 patients (42%) with occult bleeding. CE was performed for suspected Crohn's disease in 9% of cases, for suspected celiac disease in 6% of cases, and for disease monitoring in 12% of cases.

In these patients, conventional digestive explorations (upper gastrointestinal endoscopy and colonoscopy) showed no abnormalities, and small bowel imaging was unremarkable.

Medication use, particularly anticoagulants, antiplatelet agents, and non-steroidal anti-inflammatory drugs, was noted in 5 patients (15.15%). The mean delay between symptom onset and examination was 11.8 months.

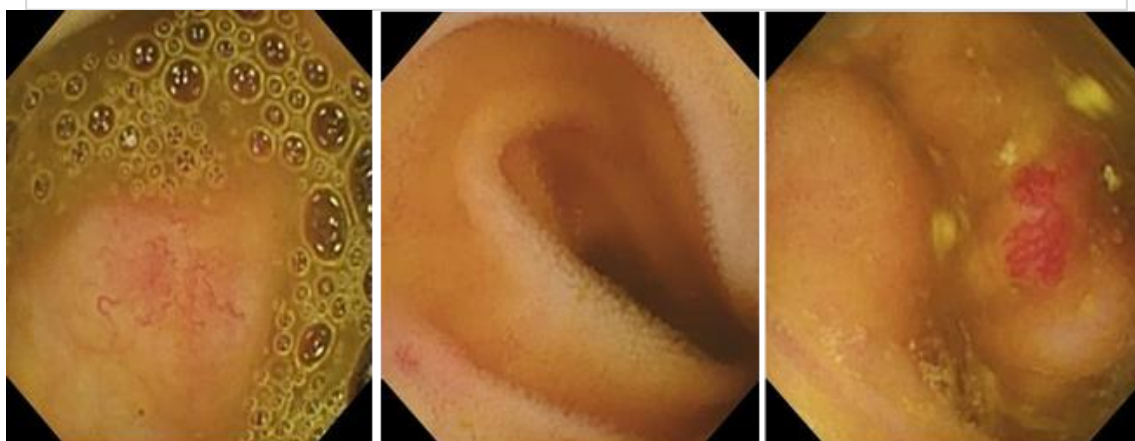
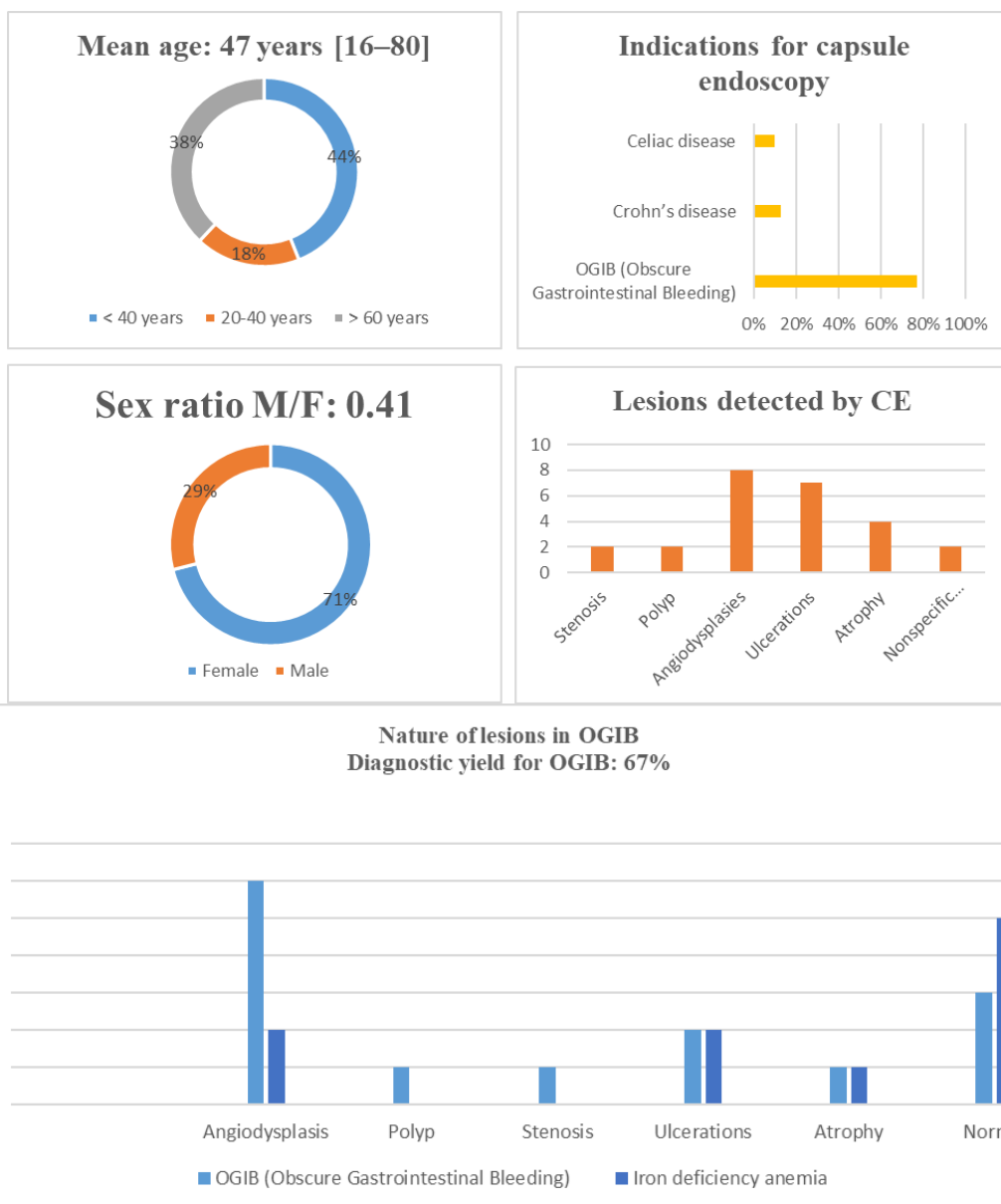
The mean hemoglobin level was 8.44 g/dL.

In the group with unexplained hemorrhage, CE revealed small bowel lesions in 16 cases (67%), predominantly angiodysplasias in 42% (n=7), followed by inflammatory and ulcerative lesions in 25% (n=4), and polypoid hemorrhagic lesions in one case (n=1). No small bowel lesions were found in 25% of cases (n=4). Lesions outside the small bowel, such as erythematous gastritis and gastritis, were also identified.

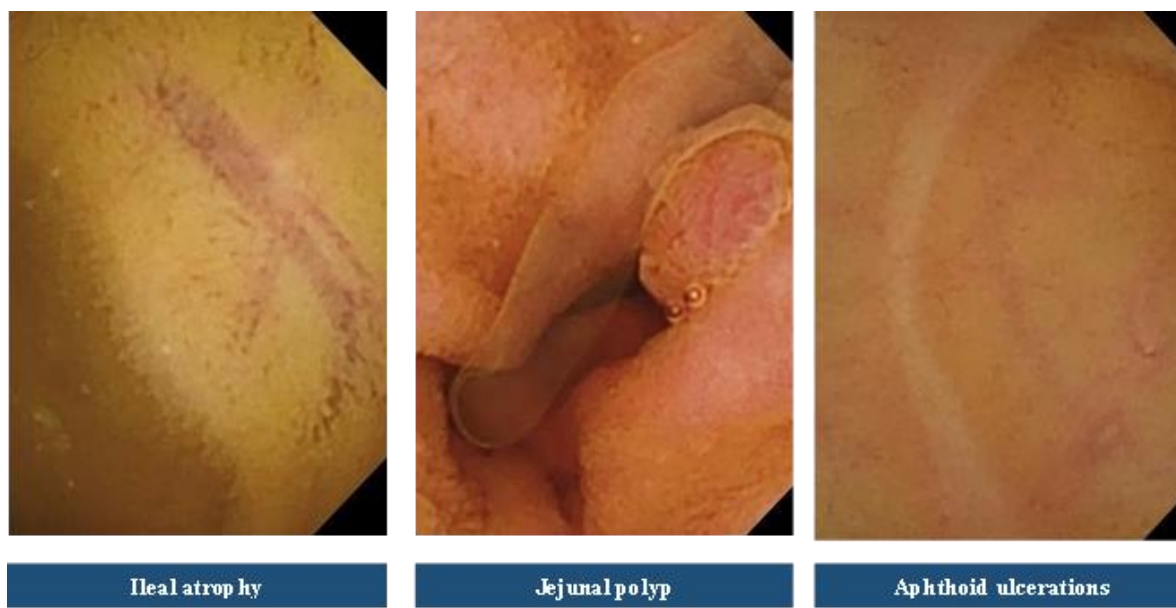
The indication with the highest diagnostic yield was obscure bleeding in 8 patients, followed by refractory iron deficiency anemia, and finally, disease monitoring in Crohn's disease under treatment. Capsule

endoscopy showed a poor diagnostic yield for Crohn's disease and celiac disease. No complications were noted after the procedure.

Enteroscopy was performed in 12 patients for various reasons (argon plasma coagulation, diagnostic biopsy).



Angiodysplasias



IV. Discussion:

Capsule endoscopy (CE) has profoundly transformed the exploration of the small bowel, particularly in the evaluation of obscure gastrointestinal bleeding (OGIB). In our prospective study, we observed an overall diagnostic yield of 66.66%, a result perfectly consistent with the international literature (ranging from 50% to 75%).

Analysis of main results:

The high detection rate confirms the performance of CE. Angiodysplasias were the most frequently observed lesions (41.66%), followed by inflammatory lesions (29%).

Comparison with the literature:

Our results are consistent with those reported by Saurin et al. (67.2%) and Stephanis (76%). A recent meta-analysis (Singh, 2023) confirms an average detection rate of 68%.

Limitations of our study:

Limited sample size, monocentric study design, and absence of histological confirmation.

Strengths of our study:

First prospective local series, consistent with international standards.

Perspectives:

Improvement in patient selection, implementation of artificial intelligence for automatic analysis, and development of motorized capsules.

Study	Sample size	Diagnostic yield of CE	Diagnostic yield for OGIB	Diagnostic yield for chronic diarrhea	Detected lesions
Vahedi (Paris)	83	34%	43%		
Clément Matias (Amiens)	104			3.8%	
De Stephanis (Nancy)	389		76%		<ul style="list-style-type: none"> ✓ ulcers and ulcerations ✓ arteriovenous malformations (AVMs) ✓ nonspecific inflammation ✓ invasive Crohn's disease – celiac disease ✓ polyp

					✓ lymphatic stasis – presence of portal hypertension lesions
Saurin et al. (Lyon)	60		67.2%		
Gharbi et al. (ESGE 2019)	37	20%			
CHU Rabat (2014)	113		Occult OGIB: 78% Overt OGIB: 70%		✓ diffuse angiodysplasias ✓ tumoral process ✓ features suggestive of Crohn's disease ✓ an ileal polyp
Shou-Jiang Tang (2004)	37	63%			✓ Cameron ulcer ✓ angioectasia

V. Conclusion

Capsule endoscopy has proven to be a valuable diagnostic tool, particularly in the evaluation of obscure gastrointestinal bleeding and unexplained iron deficiency anemia, where its diagnostic yield was highest. Its non-invasive nature and the absence of post-procedural complications make it a safe and well-tolerated exploration method.

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