



Imaging, Endoscopic and Surgical Aspects Correlation of Inflammatory Bowel Disease: A Retrospective Perspective

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ABSTRACT: Chronic inflammatory bowel disease have been the major focus of research in gastroenterology these late years. It is due to the elevated incidence of comorbidity as well as complications. MRI, endoscopy as well as histology are the three pillars of the diagnosis, follow-up and prognosis of these pathological entities. Our aim for this study was to determine the relationship between the radiologic, endoscopic modalities and the histological severity of the active disease.

KEYWORDS: Bowel Disease, Endoscopy, Histology, Inflammatory Disease, MR

INTRODUCTION

Crohn's disease and ulcerative colitis are the two main forms of chronic inflammatory bowel disease (IBD)[1, 2].Imaging, particularly Entero-MRI, has gained considerable momentum in the management of IBD due to recent technical advances in establishing activity scores. Imaging techniques provide accurate and comprehensive mapping of all lesions[1, 2]. These techniques are invaluable for initial diagnosis and follow-up treatment; they help to guide the therapeutic attitude and avoid complications.

AIMS

Exploring the place of CT and MRI in the exploration of IBD.

The contribution of CT and MRI in evaluating the severity of the inflammatory activity of IBD by correlating them with endoscopic and / or surgical data.

METHODS

A review of the pathological database in the Medicine B department of Avicenna Hospital in Rabat over a period of one year revealed 63 cases of Crohn's disease and 22 cases of UC.

- Of these, 48 patients were referred to the central radiology department for entero-CT and 10 for entero-MRI.
- Twelve patients were excluded from whom histological evidence was not performed and 10 others because the inflammatory assessment did not proceed.
- The other 36 patients were included in the study.

This retrospective review was performed after endoscopic and / or surgical results and histological confirmation of the final diagnosis.

A consensus of two experienced radiologists made the final interpretations in digestive radiology.

A standard questionnaire was completed for each patient.

From the pathological and clinical records of the patients, we also evaluated the inflammatory activity at the time of the entero-scanner or entero-MRI.

The active disease was confirmed by the presence of active inflammation on histological examination.

Data on the questionnaires were collected and statistical analyzes were performed using commercially available software (SPSS v23).

The exact Fischer test was used to test for significant differences, with a P-value threshold of 0.05.



RESULTS

In terms of age and sex, most of our patients were young, which is consistent with several epidemiological studies.

Unlike the literature, where the majority of studies report a female predominance, a distinct male predominance has been noted in our patients.

For a history of CI 69% of Crohn's disease, 13% had a history of UC, 13% had no history.

Clinically, the patients had 44% transitory disorders, 28% a Koenig syndrome, 10% rectal bleeding, 10% a rectal syndrome, 8% ano-perineal lesions.

In terms of biology, 69% of patients had an inflammatory syndrome.

The endoscopic features were as follows, 72% had aphtoid ulcers, 30% stenosis, 17% polyps, 11% fistulas.

For radiology, 77% of patients received an entero-CT, 23% of entero-MRI. Sites with predictive involvement included 29% of the last small bowel loops, 24% colon, 22% recto sigmoid, 22% ileocecal anastomosis. The main localization of inflammation: ileum and ileocecal region (53%). The average parietal thickness was around 8mm +/- 3.06.

The results of the semiology characteristics are summarized in Table 1.

In terms of histological evaluation of the activity we had found, 50% of the patients had a severe activity, 36% non-severe activity, 14% no activity.

DISCUSSION

For the study of radio-histological correlation, patients were divided into two groups (Tab 2):

- Patients with severe inflammatory activity (1): 50%
- Patients with non-severe inflammatory activity (0): 36% (14% had a chronic lesion).

Fisher's exact test shows that there is a significant correlation between some radiological wall and extra-mural signs and histological inflammatory activity: (Tab 3)

- Mesenteric hyperemia (Strong correlation: 88%).
- Mucous enhancement target: (Strong correlation: 77%).
- Hyper signal T2 submucosal: (Strong correlation: 80%).
- Mesenteric ADP (moderate correlation: 55%).

There was no significant correlation between parietal thickness and histological inflammatory activity score. The other parameters did not show a significant correlation with the inflammatory activity in particular: Ulcerations, diffusion hyper signal (marker of inflammatory activity), Abscess, Fistulas, Ascites, Sclerolipomatosis, Pseudo polyps. Ulcers and abscesses: present in case of severe inflammatory activity without significant correlation. Fat halo sign, Sclerolipomatosis and Pseudo polyps seem to have a strong correlation with non-active chronic inflammatory disease

Radio-endoscopic correlation: Low sensitivity of imaging for the detection of ulcerations and polyps in relation to endoscopy. Imaging is of great interest in fistula detection. Stenosis is detected almost equally by the two methods of exploration.

All variables used in imaging of IBD except Fat halo sign, pseudo polyps and extra digestive disease showed a higher prevalence in patients with severe inflammatory activity.

Most studies have evaluated the impact of radiology or endoscopy in the diagnosis of IBD. However, we focused on the comparison of the ability of each of these two diagnostic methods to evaluate the degree of severity of IBD by correlating it with histological data.

In our patients, the comparative study of the sensitivity of each diagnostic method of CD (endoscopy and imaging) showed that the concordance of these two diagnostic tools varied according to the studied lesion.

We confirmed the data of the literature concerning four signs with a strong correlation with the degree of severity of IBD: Mesenteric hyperemia, T2 hyper signal, stratified enhancement, mesenteric ADP. We have shown the high sensitivity of imaging including entero-MRI to detect complications of IBD unlike endoscopy whose exploration is limited to the intra luminal area. Contrary to literature, in our case series there was no significant correlation between the degree of wall thickening and the severity of the disease[3].[4]

Endoscopy for the detection of ulcerations and polyps is much more sensitive than imaging with a discrepancy in favor of endoscopy. The concordance rate is average for the detection of stenosis. However, in some patients with very tight stenosis



limiting the passage of the endoscope, evaluation beyond the narrowing of the active or fibrostenotic form could only be done by Entero-MRI. This is consistent with data literature about the limitations of endoscopy and the great contribution of imaging in this case[5-7].

CONCLUSION

Entero-MRI is at least equivalent to the enteric scanner in the evaluation of IBD activity, at the cost of less radiation. However, in contrast to endoscopy-which can sometimes be limited by tight stenosis-has shown excellent sensitivity in determining the active or fibro stenotic form of IBD, which is essential for the choice of the type of treatment (medical or surgical).Currently, the research focuses on the development of an MRI score that would integrate the different semiology elements to obtain a control grade of the degree of inflammatory activity, on the model of endoscopic and clinical existing scores.

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