A preserved stratified pattern of the bowel wall 1 year after major surgery does not influence the surgical recurrence of Crohn's disease

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Dear Editor

With the continued release of new biologic drugs able to change the natural history of patients with Crohn's disease (CD) [1], it is essential to identify the patients with a worse prognosis, to precociously treat them.

In CD early endoscopic recurrence is often asymptomatic, thus indicating that CD lesions may develop with no symptoms [2].

In two recent studies we found that bowel wall thickness at the anastomosis >3 mm, detected through bowel ultrasound performed 1 year after surgery [3], with additional contribution of power-colour Doppler [4] could be added to the list of non-invasive predictors of early recurrence after ileo-colonic resection besides those already known in literature.

The hypoechoic echopattern of bowel wall is associated with predominant acute inflammatory changes of bowel wall when compared to the stratified pattern [5], like a positive power Doppler [4].

In an Italian study [6] the authors documented that an hypoechoic echopattern in the context of a thickened bowel wall at 12 months from surgery (patients treated with stricturoplasty, conservative surgery) was highly predictive of symptomatic CD recurrence; they and others have documented that the decreased echogenicity of diseased bowel wall is due to hyperemia and neovascularization related to an increased inflammatory response.

We performed a retrospective study on 196 patients that underwent ileo-colonic resection with ileo-colonic anastomosis between December 1993 and March 2009 (all diagnosis of Crohn’s disease was confirmed through histologic examination). All patients underwent bowel ultrasound after a mean time of 13 months (range 7–16 months) after surgery; in this study, we analyzed the 59 patients in which the the neoterminal ileum appeared with a preserved stratified pattern.

Bowel ultrasound was performed using the following ultrasonographic equipments: ESAOTE AU4, ESAOTE Technos, ESAOTE MyLab 70, and TOSHIBA Aplio. A first evaluation of the bowel was made with a convex transducer (frequency 3.5 MHz) and then with a high frequency linear-array transducer (7.5–10 MHz); multilayered appearance was evaluated at the preanastomotic ileum.

The four ultrasonographers who performed the examinations were all radiologists with at least 3 years of experience in ultrasound scanning of patients with intestinal bowel diseases and all working in the same department. Each investigation was performed by one radiologist. During the procedure, the involved tract wall was examined in a transverse section, from the central hyperechoic line of the lumen to the outer hyperechoic margin of the wall with a linear-array transducer.

The rate of surgical recurrence for the whole population was 20.4% (40 of 196 patients), at a mean time of 78 months from previous surgery (range: 20 months - 175 months).

A preserved stratified pattern of bowel wall at the neoterminal ileum did not change the incidence of surgical recurrence (20.3%) ($p = 0.99$).

Possible biases of this study were the retrospective design and the fact that the preserved stratified pattern of the bowel was explicitly reported in only 59 patients of the original 196 patients; but the comparison has not been done with the remainder 137 patients, rather with the rate of the surgical recurrence of the whole population of patients, and the fact that the surgical recurrence of this 59 patients with a preserved stratified pattern explicity reported was almost identical (20%) to that of the whole population is noteworthy.

In conclusion, we can say that, opposed to have a physiological thickness of bowel wall (<= 3 mm) [2] or a negative result at the power Doppler [4], a preserved stratified pattern of the bowel wall at the preanastomotic ileum 1 year after surgery doesn't decrease the probability of surgical recurrence in patients that underwent ileo-colonic resection for Crohn's disease of the terminal ileum.

References

1. Heetun ZS, Keegan D, O'Donoghue D et al. (2014) Report of successful use of ustekinumab in Crohn's disease refractory to three anti-TNF therapies. Ir J Med Sci 183:507-508. doi: 10.1007/s11845-014-1107-2
2. Rutgeerts P, Geboes K, Vantrappen G et al. (1984) Natural history of recurrent Crohn's disease at the ileocolonic anastomosis after curative surgery. Gut 25:665–672.
3. Cammarota T, Ribaldone DG, Resegotti A et al (2013) Role of bowel ultrasound as a predictor of surgical recurrence of Crohn's disease. Scandinavian Journal of Gastroenterology 48:552-555. doi: 10.3109/00365521.2013.777774
4. Ribaldone DG, Cammarota T, Resegotti A et al. (2014) Power Doppler sonography to predict the risk of surgical recurrence of Crohn's disease. Journal of Ultrasound. doi: 10.1007/s40477-014-0101-x
5. Maconi G, Carsana L, Fociani P et al. (2003) Small bowel stenosis in Crohn's disease: clinical, biochemical and ultrasonographic evaluation of histological features. Aliment Pharmacol Ther 18:749-756.
6. Parente F, Sampietro GM, Molteni M et al. (2004) Behaviour of the bowel wall during the first year after surgery is a strong predictor of symptomatic recurrence of Crohn's disease: a prospective study. Alimentary Pharmacology & Therapeutics 2004;20:959-968.