Why should we systematically specify the clinical relevance of images observed at capsule endoscopy?

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In 2014, capsule endoscopy is the reference procedure for examining the small bowel of patients with obscure digestive bleeding. The diagnostic yield has long been shown to be greater than 50% in most series [1 – 3], and to be up to 90% in emergency settings in patients with overt obscure bleeding [1]. In the case of a patient with obscure bleeding, capsule endoscopy identifies a majority of telangiectases (65%) and ulcers (18%) and relatively few tumors (2 – 8%) and other diagnoses, such as portal hypertension. The sensitivity of capsule endoscopy is very high in most series that include long-term follow-up. Long-term follow-up is important to rule out missed diagnoses and to clarify the clinical relevance of lesions identified by capsule endoscopy. In fact, the main question regarding capsule endoscopy findings is not 'Did we miss a diagnosis?'. This happens infrequently in clinical practice. Rather, the main question is 'What is the clinical relevance of our findings?'.

The relevance of the findings is the predicted significance of the observed lesions in a patient with obscure bleeding (including anemia and overt bleeding). We all have had the experience of discovering small-bowel telangiectasia at capsule endoscopy and considering it to be the cause of bleeding, with a secondary diagnosis made several weeks later – for example, a missed colonic or endometrial tumor. In this example, the significance of the telangiectasia was equal to zero. This could have been suspected immediately after the diagnosis of telangiectasia if the lesion was very small and not bleeding. There are also published cases of surgical interventions scheduled on the basis of irrelevant small-bowel lesions detected at capsule endoscopy [4]. This is why in 2003 we proposed a simple classification for the relevance of lesions (P0, P1, P2), allowing the capsule reader to estimate the relevance of each lesion detected at capsule endoscopy. We consider that such relevance has a major impact on patient management and should be taken into account, especially before any therapeutic intervention (by enteroscopy in most cases) is scheduled [3]. This classification has been validated by the following: (i) lesions were stated to be highly relevant (P2) by both readers in blind tandem readings in 100% of cases, compared with 73% and 27% of cases, respectively, for P1 and P0 lesions; (ii) the therapeutic impact proved to be 61% for P2 lesions versus 23% for P1 or P0 lesions; and (iii) the follow-up of patients [5].

Misinterpretation of the clinical relevance of small-bowel lesions can lead to unjustified aggressive therapy; in a tandem reading study with expert review of discordant cases, a 50% error rate of experienced readers was finally stated for discordant cases (13 of 25 discordant results), which corresponded in 5 of the 13 errors to the "overclassification" of an irrelevant abnormality [6]. Another comparative study showed an "overclassification" of such irrelevant abnormalities in about 10% of capsule endoscopy readings [7]. Thus, stating the relevance of each lesion detected at capsule endoscopy may help readers to improve the quality of their reading and their decision making, and to decide whether enteroscopy or other treatments should be attempted, although this remains to be scientifically proven. Indeed, we all have had the experience, when reviewing the capsule film before performing enteroscopy, of deciding that the procedure should be cancelled because the capsule findings did not justify an aggressive approach. In the rare situations in which tumor detection is the main objective of capsule endoscopy, such as in patients with Lynch syndrome or familial adenomatous polyposis, the relevance of the lesions observed at capsule endoscopy is of even greater importance, considering the risk and difficulty involved in accessing the small bowel of patients who have undergone multiple [SJ1] surgeries; in these cases, only highly relevant lesions justify further investigations [8,9].

The relevance of lesions is one important point in the paper by Sato and colleagues published in this issue. The study deals with the interesting question of the usefulness of virtual chromoendoscopy (flexible spectral imaging color enhancement, or FICE) for the detection of clinically significant lesions in patients with various clinical problems and small-bowel involvement. The informatics and capsule system used are those of Given Imaging (Yokneam, Israel). The paper is one of the first to suggest the superiority of a specific FICE setting for the detection of vascular and erosive lesions in the small bowel of patients with miscellaneous clinical indications. This may be of importance based on the fact that only "clinically relevant" lesions (P1 or P2) were considered in the study, in which the P0 – P2 classification was used. However, the question then is that of the clinical usefulness of the setting, as 4 % of lesions of each type (vascular and ulcerative) are detected only with use of the FICE setting, but the highest sensitivity for tumor corresponds to white light imaging. The Cornelian dilemma is thus, What mode is optimal for reading the small-bowel capsule film, as nobody will accept a two-mode, time-consuming reading protocol? Indeed, detecting all lesions is one aim, but detecting all high-risk lesions (and especially tumors) may be even more important. Probably the answer could come from a large prospective study with only one clinical indication, probably the most important one for capsule endoscopy – that is, obscure digestive bleeding.

Competing interests: None

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