

The European experience with double-balloon and single balloon enteroscopy

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In the diagnostic work-up of small bowel diseases ultrasound of the small bowel, radiological imaging techniques such as CT or MR enteroclysis or angiography and different enteroscopy techniques are available. The main indication for investigation of the small bowel is still suspected or proven mid GI bleeding, that means that the bleeding source is located in the small bowel.

Capsule endoscopy is a safe, but pure diagnostic tool and represents a good screening method, whereas all flexible enteroscopy techniques are more invasive, but offer the option of taking biopsy samples and performing therapeutic interventions such as hemostasis, dilation, polypectomy or foreign body extraction. For deep small bowel endoscopy, balloon-assisted enteroscopy (BAE) using one or two balloons is actually the preferred method. Both, double-balloon and single-balloon enteroscopy (DBE, SBE) are following the push-and-pull principle using special designed enteroscopes and special overtubes. Using the DBE technique one balloon is attached at the tip of the overtube, the other one at the tip of the scope, whereas the SBE technique only uses the balloon at the tip of the overtube. The second balloon at the tip of the endoscope helps to hold the scope position in difficult anatomical conditions during advancement of the overtube and is probably less traumatic for holding the scope position compared e.g. with the flexed tip used in SBE, helps to stabilize the position during endoscopic therapy and helps to pull apart the pleated folds during withdrawal and therefore probably might reduce the percentage of missed lesions.

Double balloon enteroscopy is the “oldest” flexible enteroscopy technique, which has been introduced in 2003 in Japan by Prof. Yamamoto and in 2003 in the Western hemisphere by our group. In the mean time it has become established throughout the world for diagnostic and therapeutic examinations of the small bowel, and is now used universally in clinical routine work. With a proper patient’s selection a high diagnostic yield of around 70-80% going along with a high therapeutic yield and an acceptable complication rate of approximately 1% for a diagnostic DBE and 3-4% for a therapeutic DBE. There are limited published prospective trials comparing DBE and SBE, but it was clearly demonstrated, that DBE is superior to SBE regarding the rate of complete enteroscopy, the only objective parameter (compared to insertion depths, which is always an estimation). Only in 1 study the therapeutic yield showed a significant difference between DBE and SBE. The comparison of the diagnostic yield has a limited value, because also a complete negative enteroscopy can be important for the further management of a patient. Additionally, the diagnostic yield in case of multifocal lesions might be the same for both techniques, but the number of detected lesions might be different (e.g. angiodysplasias, polyps, stenoses etc) and could be important.

Double balloon enteroscopy is still the non-surgical gold standard enteroscopy technique at



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present, because it provides the highest rates for complete enteroscopy resp. deep insertion.

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