

Peroral endoscopic myotomy using tailored accessories

Peroral endoscopic myotomy (POEM) is the latest breakthrough in the treatment of achalasia. It was first reported by Inoue in 2010^[1] and since then more than 7000 procedures have been performed worldwide. Clinical efficacy is achieved in more than 80–90% of patients, and serious adverse events are rare when the procedure is performed by experienced operators.^[2–5] Although initial reported average procedural times were around 2 hours, POEM nowadays is routinely completed in less than an hour owing to growing experience with the procedure.

POEM continues to be performed, as was initially described by Inoue *et al.*, with the procedure divided into four steps – mucosal incision, submucosal tunneling, myotomy, and mucosal closure.^[6] Few papers have focused on variation in techniques and how these impact outcomes which included efficacy, efficiency, and safety. In the current retrospective study in this issue of the Journal, Nabi *et al.* explored outcomes of POEM performed using the newly available triangular tip knife with water jet function (TTJ) ($n = 93$) as compared to the conventional TT knife ($n = 100$) in 193 patients with achalasia.^[7] Baseline patient and procedural characteristics were similar between both groups. As expected, rates of technical success (TT-99% vs TTJ-98.9%) and clinical success (TT-98% vs TTJ 97.8%) were achieved in a majority of patients and were similar between the TTJ and TT groups. There were no major adverse events in both groups. However, procedure time was significantly shorter in the TTJ group as compared to TT group (53.8 ± 15.2 vs 71.9 ± 22.8 minutes; $P = 0.0001$), likely due to the significant decrease in need for exchanges of accessories required in the TTJ knife group (2.92 ± 1.77 vs 10.5 ± 3.58 ; $P = 0.0001$). These results are expected as the jet feature of the novel TTJ knife precludes the need for knife exchange with a spray catheter for staining submucosal fibers. In the current study, the jet feature of the TTJ knife resulted in an average of about 8 less exchanges per procedure.

The main limitation of the study by Nabi *et al.* is its retrospective nature with inherent predisposition to section bias. Needless to say, that a randomized trial is optimal for showing the equivalency or superiority of one knife over the other. Nonetheless, the authors are to be

commended for putting together this relatively large study with a focus on tailored accessories for the performance of POEM.

One prior randomized trial by Cai *et al.* compared outcomes of POEM using either the TT knife or the HybridKnife (HK, ERBE, Tubingen, Germany).^[8] Similar to the TTJ knife, the HK also has a jet feature and allows needles injection of dyed saline. A total of 100 patients were included and procedure time was significantly shorter in the HK group (22.9 ± 6.7 vs. 35.9 ± 11.7 minutes; $P < 0.0001$), mostly due to less frequent replacement of accessories (2.0 ± 2.4 vs. 19.2 ± 7.6 ; $P < 0.0001$). Clinical success (Eckardt score ≤ 3) was achieved in 96.5% of the patients, with no significant difference between both groups.

We previously described a method of injecting dyed saline through an integrated water jet channel of a high-definition gastroscope (GIF-HQ190; Olympus, Tokyo, Japan).^[9] One bottle of saline and a second bottle of saline mixed with indigo carmine were directly connected to the water jet channel via a stopcock. Separate foot paddles controlled each bottle. Repeated jet injection of saline mixed with indigo carmine was performed to enhance the demarcation between the submucosal layer and muscularis propria whenever the submucosal dissection plane became unclear. All procedures were technically and clinically successful without any early or long-term complications. No knife exchanges with a spray catheter were required during any of the procedures.^[9] We have used this method in over 300 cases over the last 5 years with consistent procedure times under 60 minutes and believe that it offers the same advantage of the TTJ and the HK knives.

It is clear that jet injection of dyed saline performed by any of the above three described techniques facilitates efficient POEM and is strongly recommended for all POEM operators. Instrument exchanges solely for staining of submucosal fibers is completely eliminated with all of these techniques. These techniques shorten procedure times, which theoretically may reduce gas-related adverse events. This also has direct effect on procedural cost,^[10] especially when POEM is performed in an operating room.

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