Modifications to simplify intrathecal irrigation for pyogenic flexor tenosynovitis

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Dear Sir,

We describe two modifications to simplify cannulation and passage of fine feeding catheter through flexor sheath for closed irrigation of infective flexor tenosynovitis.

Cannulating the flexor sheath and controlled passage of fine feeding catheter through the retinacular system can be difficult due to its pliability, often requiring multiple attempts and causing additional trauma to flexor tendons. Conventionally, irrigation solution is pumped out through the tip of the catheter and intrathecal lavage is dependent on the pressure jet and continuous flow [2]. The potential drawbacks of the latter are incomplete evacuation of infected material and tedious dressings. Other authors have described single and multiple fenestrations along catheter in human and veterinary patients [1, 4]. The advantage of side fenestration is the delivery of irrigation solution to sanctuaries such as the sub-chiasms and intertendinous interfaces.

Based on the above techniques, we have modified the closed irrigation technique in two ways to ease cannulation and intrathecal lavage. In all cases, the flexor sheath is visualized and accessed through hemi-Brunner incision centered over A4/5 or A3/4, and a palmar crease incision centered on the A1. The first modification introduces an intraluminal 24-gauge wire to stiffen the tube for cannulation at either A3/4 or

A4/5 and retrograde passage to the A1 window (Fig. 1). The second modification involves fenestrating the catheter along its middle portion to increase turbulence of intrathecal flow. During irrigation, the catheter is drawn back and forth, while an assistant flushes the tube after clamping its tip. The end point is the evacuation of clear fluid from the A1 window.

We believe that the combination of mechanical lavage and fluid flow through the fenestrations increases direct clearance of intrathecal material as opposed to indirect methods that rely on continuous flow (Fig. 2). The catheter is removed after

Fig. 1 Middle segment of a feeding catheter is marked (black arrows) and fenestrated with a no. 11 blade. Intraluminal 24-gauge wire to increase stiffness of catheter to ease cannulation and manipulation of catheter

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Fig. 2 *Left to right.* Direct irrigation—tip of catheter clamped to facilitate intrathecal flow of irrigation fluid (*blue arrows*), and oscillating motion (*thick black arrows*) to promote mechanical lavage. Indirect irrigation—flexor sheath is cannulated and irrigation fluid flows through the tip of the catheter. Clinical application of the technique

irrigation and postoperative irrigation is not practiced due to the lack of perceived benefits [3].

Conflict of Interest Sze-Ryn Chung declares that she has no conflict of interest.

Tun-Lin Foo declares that he has no conflict of interest.

Statement of Human and Animal Rights This article does not contain any studies with human or animal subjects.

Statement of Informed Consent Informed consent is not required as patients' privacy was not infringed.

References

1. Anderson DE, Allen D, St-Jean G, et al. Use of multifenestrated indwelling lavage system for treatment of septic digital tenosynovitis in cattle. *Aust Vet J.* 1997;75(11):796–9.
2. Gutowski KA, Ochoa O, Adams Jr WP. Closed-catheter irrigation is as effective as open drainage for treatment of pyogenic flexor tenosynovitis. *Ann Plast Surg.* 2002;49:350–4.
3. Lille S, Hayakawa T, Neumeister MW, et al. Continuous postoperative catheter irrigation is not necessary for the treatment of suppurative flexor tenosynovitis. *J Hand Surg (Br).* 2000;25(3):304–7.
4. Mullet H, Hausman M. Single side hole irrigation—a simple method of catheter irrigation of the tendon sheath. *Acta Orthop Belg.* 2006;72:87–9.