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Letter to the Editor

Effectiveness of Multiple Neurectomies to Prevent Chronic Groin Pain After Tension-Free Hernia Repair

To the Editor:

We read with great interest this single-blind randomized controlled trial done by Karakayali *et al*.[1] They aimed at evaluating the effects of prophylactic neurectomies on the incidence of chronic groin pain following Lichtenstein's tension-free hernia repair. The authors tried to identify an important solution to this most common and significant complication following inguinal hernia repair, recruiting 240 patients under 4 groups.

The authors concluded that there is a significant difference between the neurectomies group and the preservation group, with pain being much less in the former group at 1-year follow-up (5.7% versus 23.3%; $P = 0.009$). Similar significant difference was noticed for groin numbness (20.8% versus 5%; $P = 0.011$) and sensory loss or changes (37.7% versus 11.7%; $P = 0.001$), with neurectomies group scoring high on both of them. However, there was no statistical difference in quality of life between the 2 groups. Therefore the authors recommend elective excision of both ilioinguinal and iliohypogastric nerve.

In this letter we address some of the unanswered questions from the study in order to guide a productive discussion and meaningful analysis.

The authors evaluated whether ilioinguinal (IIN) or iliohypogastric (IHN) nerve causes chronic groin pain. We all know that the IIN, IHN, and genitofemoral (GFN) nerves all cross the inguinal canal and are consequently vulnerable to injury. Though the authors clearly mention that GFN can be responsible for chronic groin pain, they haven't included it as one of the intervention groups, assuming that it is least responsible for inguinodynia. They could have also excised the GFN in one of the arms to improve the robustness of their study. Though the authors noticed no statistical difference between identification, preservation, or division of the GFN among the 4 groups, still if the GFN had been excised in a separate neurectomy group, there may have been potential for the Chronic Groin Pain to have been different at 1 year. This could have added more value to the completeness of the study with a meaningful conclusion compared with previous publications on this topic.[2–5] A clear explanation on how the GFN was excised, preserved, or not identified would help any future study.

A United Kingdom survey of the handling practice of inguinal canal structures showed that 56% of surgeons do not routinely look for GFN.[6] It is quite clear that anatomic variations in the inguinal nerves have led to confusion and apprehension among the researchers trying to leave one or the other nerves in their study of chronic groin pain. Two large prospective studies have shown the importance of all 3-nerve identification during the open inguinal hernia repair.[7–9] Recent anatomic studies have elaborated the course of GFN, in an aim to remove the myth that identification of GFN is difficult.[10–12]

The genitofemoral nerve originates from L1/L2 and pierces the iliopsoas muscle where it lies on its ventral surface. Then it divides into genital and femoral branches, proximal to the inguinal ligament. In an anatomic study, Wijsmuller *et al* showed that 94% of the genital branch of GFN entered the inguinal canal laterocaudally through the internal ring in the frontal plane.[10] Then, after running through the inguinal canal at the dorsocaudal side of the spermatic cord parallel to the cremasteric artery and vein (blue line), 44% passed dorsally, 28% medially, and 22% laterally to the spermatic cord though the external ring. It is within the canal that the genital branch is at risk

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during spermatic cord dissection; in addition it may be caught by constriction at the internal inguinal ring or by perineural fibrosis.

From these anatomic studies, it is certain that the course of GFN is least variable proximally and therefore can be identified and either preserved or excised if needed. Ducic and Dellon showed that postherniorraphy testicular pain is mostly due to GFN, and they devised an approach to identifying and resecting the GFN as proximally as possible, so that it retracts retroperitoneally.[13]

To add value to the conclusion of Karakayali *et al*, one can consider GFN neurectomy, as it lies in very close proximity to the cord structures and it may come in contact with the mesh or with the suture. However, there is no literature evidence on triple neurectomy as a standard procedure during tension-free inguinal hernia repair, though Amid showed that it is feasible to do a triple neurectomy as a single-stage procedure to treat postherniorrhaphy neuropathic pain.[14,15]

The authors also showed that groin numbness and sensory loss or changes at 1 year were significantly higher in the neurectomies group compared with all nerve preservation groups. But there was no sensory assessment done on these patients preoperatively, which would help compare the patient's sensory level before and after the procedure. We also propose that the patient's opposite groin could have been used as a control to properly assess sensory changes postoperatively.

Based on the above discussion, we would like to emphasize the importance of identifying all 3 nerves during inguinal hernia repair in order to do selective neurectomy or preserve them. A randomized controlled study incorporating these details would help surgeons make an evidence-based decision in treating their patients and avoid the significant and potential complication of inguinodynia.

Finally, the 5 and 7 patients from groups 2 and 4, respectively, should have been included for the statistical evaluation on the basis of intention-to-treat. This may have made a difference in the outcome of the result.

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