

Authors' reply

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Christodoulou *et al* present a very interesting surgical technique, surely feasible, effective, and safe [1]. In our view, the dilation technique with the finger, which we investigated with well-defined exclusion and inclusion criteria, and their approach with laser electrocoagulation cannot be compared in this way. The risk of local traumatic complications, fistulas or abscesses, is absent in our experience of hundreds of treated cases. It is difficult to imagine such a problem resulting from dilation with a finger using adequate lubrication.

As we reported in our randomized prospective study, the technique we proposed is not indicated in the treatment of patients with chronic anal fissure, and the results obtained are related to a small population of patients with acute anal fissure only. In addition, although it was not stressed in our paper, randomized patients were those able to undergo a proctologic examination. Thus, all patients who absolutely could not tolerate anal pain were candidates for anal exploration under sedation. Thus, in these acute cases, anal fissure removal associated with lateral internal sphincterotomy was performed.

It was not our intention to compare surgical treatment to noninvasive treatment. Our approach can be considered as a simple domiciliary medical therapy with a minimal social healthcare cost. We agree with Christodoulou *et al* that, in patients affected by chronic anal fissure and in cases of intense painful symptomatology, it is mandatory to recommend a surgical approach that gives the patient a very good chance of healing, such as the technique with laser electrocoagulation.

In this regard, in our Pelvic Floor Unit, patients suffering from chronic and acute anal fissure with painful symptomatology unresponsive to noninvasive therapy are candidates for treatment with transcutaneous electrical nerve stimulation (TENS). TENS is an antalgic stimulation carried out with impulses that reach the peripheral nervous system through electrodes positioned on the area to be treated. TENS stimulation is typically performed with biphasic and symmetrical pulses (square wave) and with modulating frequencies. This type of antalgic stimulation, which allows the relief of pain without resorting to drugs, uses two different physiological mechanisms to achieve this. The first is the endogenous production of β -endorphins and enkephalins, thanks to the activation of the endorphin system with very low stimulation frequencies (<8 Hz). This type of stimulation, which has a slow onset, produces a general pain relief. Second, serotonin production and blockage of gate signals to the upper nerve centers. In this case, stimulation is applied at higher frequencies.

TENS is always a noninvasive outpatient treatment. The patient is slid into a Sims position and skin electrodes are applied to the perianal area. The patients considered were all subjects with chronic and acute anal pain. In acute pain, the improvement reported by the patients was immediate since the first session and has been prolonged even in the hours following the treatment. As reported by patients, the pain duration after defecation has also been reduced. The number of sessions needed was four. In contrast, in subjects with chronic

pain the improvement was negligible, confirming the need for surgical invasive treatment.

We are awaiting the Ethics Committee's authorization to undertake a randomized study to validate the safety and efficacy of this method.

Reference

1. Gaj F, Biviano I, Candeloro L, Andreuccetti J. Anal self-massage in the treatment of acute anal fissure: a randomized prospective study. *Ann Gastroenterol* 2017;**30**: (in press).

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