Sacral neuromodulation after sphincteroplasty and perineal reconstruction in a patient with severe fecal incontinence

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INTRODUCTION

Sacral neuromodulation (SNM) is a technique that uses electrical stimulation of various sacral neurological pathways to achieve an immediate response or modify an existing electrical transmission pattern (neuromodulation). It is a minimally invasive surgical therapy that allows a therapeutic test (temporal phase) to be performed to define the patients who are candidates for definitive treatment (definitive neuromodulator implant).1

Initially, it was a therapy intended exclusively for patients with severe fecal incontinence, with integrity of the nerve conduction of the pudendal and external sphincter. Currently, its indications have been expanded, and it can be used in large sphincter defects.2

We present the case of a 60-year-old patient with long-standing anal incontinence due to obstetric injury to the sphincter and rectovaginal septal defect, who underwent SNM due to functional impairment of a previous sphincter repair.

CASE

A 60-year-old female patient with long-standing fecal incontinence, with occasional passage of solid stools associated with evacuation urgency. Wexner incontinence score was 18/20. History of rectovaginal tear in the context of vaginal delivery 30 years ago. Physical examination revealed absence of the rectovaginal septum.

Endorectal ultrasound reported narrowing of both sphincters, with predominance of the internal anal sphincter throughout the anal canal and sphincter injury with a maximum angle of 150°. Anorectal manometry showed severe sphincter hypotonia.

Sphincteroplasty was performed, with plication of the levator muscles and advancement flap (Fig. 1).

The patient presented partial wound dehiscence and surgical site infection treated with antibiotics, and the wound healed by secondary intention. Postoperative check-ups showed good functional and anatomical recovery. However, 24 months later her incontinence worsened. A new anorectal manometry showed resting and squeeze pressures below normal values, with functional improvement of the external sphincter compared to the previous study (Wexner score: 12/20). In addition, she presented dyssynergia when pushing, and hypersensitivity.

It was decided to perform SNM. A temporary neurostimulator was placed under local anesthesia and sedation. The patient was placed in the prone position, with exposure of the sacrum and the distal region of the lower limbs. Sacral bone repairs were identified and, under radioscopic vision, the S2, S3 and S4 nerve roots were stimulated intermittently looking for the best contraction response. The electrode was placed at this site together with a percutaneous extension connected to the external pulse generator with a setting of 7 volts and a frequency of 10 pulses per minute. A good response was obtained, as observed by the incontinence diary, with a reduction of more than 50% of the incontinence episodes. After 14 days, the definitive neuromodulator was placed (Fig. 2). The patient evolved with symptomatic improvement, without complications. The current Wexner score is 3/20.

Figure 1*. Delayed surgical repair of obstetric injury with rectovaginal septal defect. A, Marking of advancement flaps. B, Sutured flaps after sphincteroplasty and rectovaginal septum reconstruction.*

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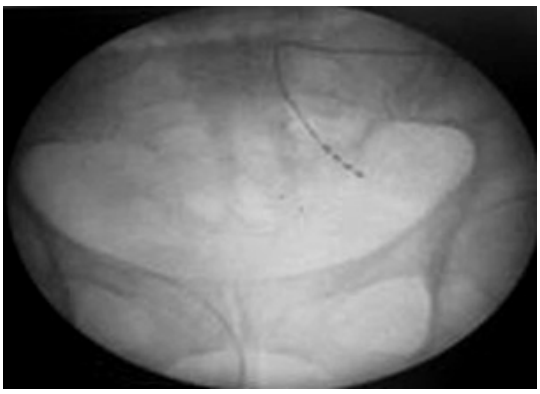

Figure 2. *Radioscopic view of the tetrapolar electrode.*

DISCUSSION

For the past several years, anal sphincteroplasty has been the treatment of choice for fecal incontinence associated with a sphincter defect. In patients without anatomical abnormalities of the sphincter or unsuccessful surgical repair, SNM has been used as a new treatment alternative. Currently, the American Society of Colon and Rectal Surgeons (ASCRS) recommends SNM as the first line of treatment for incontinent patients with or without sphincter defects.[3] Sphincteroplasty may be considered in patients with an external anal sphincter defect, but clinical outcomes often deteriorate over time.

SNM can improve sphincter muscle activity and resting pressure. Its mechanism of action is complex and involves the modulation of sacral reflexes that generate effects on rectal contractility, sensitivity and distensibility.[4]

The technique consists of two stages: a temporary phase, in which one of the sacral roots S2, S3 or S4 is located and stimulated for a variable period (5 days to 2 weeks) using an external stimulator and a definitive phase, in which the permanent neurostimulator pacemaker is placed. Permanent neuroestimulator is implanted only if a reduction of more than 50% of incontinence episodes is observed in the diary.[5]

Published studies show that a high percentage of patients who benefit from temporary SNM will obtain the same benefit in the permanent phase. Therefore, the decision taken according to the results obtained in the first phase has a high reliability to predict good long-term results.[6]

The preoperative evaluation should include at least one anorectal manometry, anal ultrasound and the recording of continence diaries.

Complications that may occur include electrode displacement, superficial infection, and rupture of the system. However, the use of the self-anchoring electrode decreases the possibility of displacement and rupture.

In the permanent phase, the most frequent complications are dehiscence and infection of the surgical wound, electrode displacement, and persistent pain, which may require removal of the neuromodulator.[7]

CONCLUSION

Extensive evidence in the current literature supports that sacral neuromodulation can be considered a first-line surgical option for incontinent patients with or without sphincter defects. Multiple studies have shown improvements in severity and quality of life scores with this technique.

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