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Case Report

Sacral Nerve Stimulation Lead Migration through the Sciatic Foramen, Successfully Repositioned

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ABSTRACT

Introduction: SNS (Sacral Nerve Stimulation) has become an established minimally invasive procedure for urinary and faecal incontinence. Minor complications related to the procedure are common; include pain, infection or migration. We present a case of a tined lead migration through the sciatic foramen.

Case Report: A 72-year-old woman with faecal incontinence, who did not respond to dietary of medical treatment, underwent a sacral nerve stimulation test. Under fluoroscopic vision a tined lead was placed in S3 foramen, with an adequate motor and sensory response. In the 7th postoperative day, she reported no improvement and she referred sensory response in the thigh and leg. Radiography showed migration of the electrode through the sciatic foramen. The repositioning of the same electrode was possible with a gentle traction of the lead. Correct placement of the lead was confirmed radiologically, and the patient showed motor and sensory response in the anal area. The patient improved Wexner score from 18/20 to 4/20.

Conclusion: Migration of the tined lead should be considered if loss of response in found. Repositioning of the same lead is possible in selected patients, without the need of removal of the device.

Introduction

Sacral nerve stimulation (SNS), also referred to as sacral neuromodulation, was reported to treat Faecal incontinence by Matzel *et al.* in 1995 [1]. SNS has become an established minimally invasive procedure for urinary and faecal incontinence. The current lead incorporates four electrode contact points that is inserted percutaneously under image guidance and anchored in sacral foramen by several tines (barbs) [2]. The electrode is placed in the proximity of the targeted nerve and is tested intraoperatively to choose the best place as to provide the optimal effect with less energy consumption. The best responses are found when the lead is placed as close to the nerve as possible, the ideal place is at the medial and superior level of the S3 foramen [3]. Complications include pain, infection and decrease of efficacy (often due to lead migration) and reoperation for complications range from 3% to 38% [4-6]. Migration of the lead is usually through the presacral space. We present a case of a tined lead migration through the sciatic foramen.

Case Report

A 72-year-old woman presented with passive faecal incontinence of approximately 2 years. She was initially treated with bulking agents, dietary changes and biofeedback with no improvement. Her Wexner score was 20/20. She started with Posterior Tibial Nerve Stimulation (PTNS) with a slight improvement of the incontinence, her Wexner score changed to 18/20. After appropriate preoperative workup and counselling, she underwent a sacral nerve stimulation test. Under local anaesthesia, a tined lead was placed in S3 foramen, with an adequate motor response and an initial sensory response in the anal area.

In the first follow-up visit on the 7th postoperative day, she reported no improvement of the incontinence and the sensory response was in the posterolateral area of the thigh and leg. She denied having any trauma or excessive movement. A posterior-anterior and lateral pelvic radiography showed the migration of the electrode through the sciatic foramen (Figures 1 & 2). The migration was probably due to an excessively deep dilation during the implantation of the electrode and the creation of a

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false path that communicates the presacral and sciatic space. The same electrode was repositioned the following day in the operating room under local anaesthesia. With a gentle traction the lead was moved, a radiological control was made to confirm correct placement of the lead. Good sensory and motor responses were achieved in the anal area.

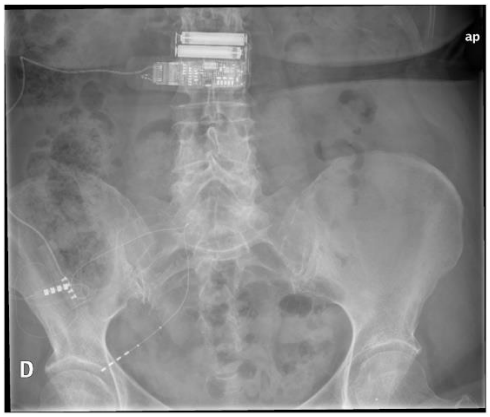

Figure 1: Migration of the lead in a posterior-anterior radiography.

Figure 2: Migration of the lead in a lateral pelvic radiography.

Finally, the patient improved her faecal incontinence to Wexner score 4/20, and the definitive generator was implanted. At 2 years after the placement of the device the patient remains asymptomatic and has a complete improvement of faecal incontinence.

Discussion

Incidence of life-threatening complication with SNS is very low, but minor complications rates range from 15-35% and reoperations from 3% to 38% [4-6]. Some of the common complications encountered include pocket complications, lead complications, migration, infection, pain and lack or loss of efficacy [7]. In the evaluation of lack of response is important to ensure that the lead is in the correct placement. Lead migration can occur with excessive movement within the pocket, history of trauma or creation of false paths in the insertion of dilator. Although tined lead are constructed to prevent migration, a deep insertion of the dilator can create a false path through which the lead can slide and movements as small as 2 mm may have an important effect in the placement of the device. The presacral space and the sciatic space are separated by a membrane, limited by the presacral fascia, the sacrospinous and sacrotuberous ligaments, the lead can slide from one space to another if a false path is created.

For the diagnosis of migration posterior-anterior and lateral radiographs at baseline and after the loss of efficacy are fundamental. Small changes in the lead position are very common, Ezra E *et al.*, reported some degree of lead migration in 100% of their patients, 35% migrated backward and 74% of the patients had a forward migration [8]. A forward migration was observed in 50% of the patients who suffered loss of efficacy. Migration through the presacral space is common, however migration through the sciatic is rare. Repositioning of the lead is possible if the migration is forward, as in the case of our patient. A medial incision should be made over the lead, pulling over the sacral foramen, instead of pulling from the pocket, in order to avoid the damage of the lead during the replacement. If the migration is backward and had loss of efficacy, lead should be removed.

Conclusion

The migration of the tined lead should be kept in mind when loss of response is found and a pelvic radiograph is essential to confirm the placement of the device. Repositioning of the lead is possible with a gentle traction, without the need of removal of the lead.

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