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Sacral Nerve Stimulation in the Treatment of Refractory Constipation

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Abstract

Introduction

*Constipation is a common condition in children. In most cases, it is treatable with education and medication. However, it can be chronic and more problematic in some children. Sacral nerve stimulation(SNS)is one of the most effective methods of treating fecal incontinence, sphincter problems and also incontinence due to neurological problems**[1]**.*

We present a case report of the treatment of refractory constipation with sacral nerve stimulation.

Presentation of case:

Herein, we report an 11-years old girl who presented with refractory chronic constipation and occasional retention for 9 years constipation.

She presented with refractory distention and partial obstruction.

Surgical team decided to try temporary SNS for her to see the short term results.SNS caused proper stimulation and the patient developed normal voiding and defication.So permanent SNS was inserted.

Discussion

At 6 months follow-up,the patient had improvement in constipation (CCCS of25 pre-SNS to 6 post-SNS).

Conclusion

SNS has a promising clinical impact refractory chronic constipation in children. This case provides encouraging findings that SNS may be a good treatment option for resistant constipation.

***Keywords**: Sacral Nerve Stimulation, Refractory chronic constipation, case report*

Introduction

Bowel dysfunction affects a significant portion of patients with a history of congenital anal malformations, with incontinence and constipation being the most frequent symptoms **[**2**]**.

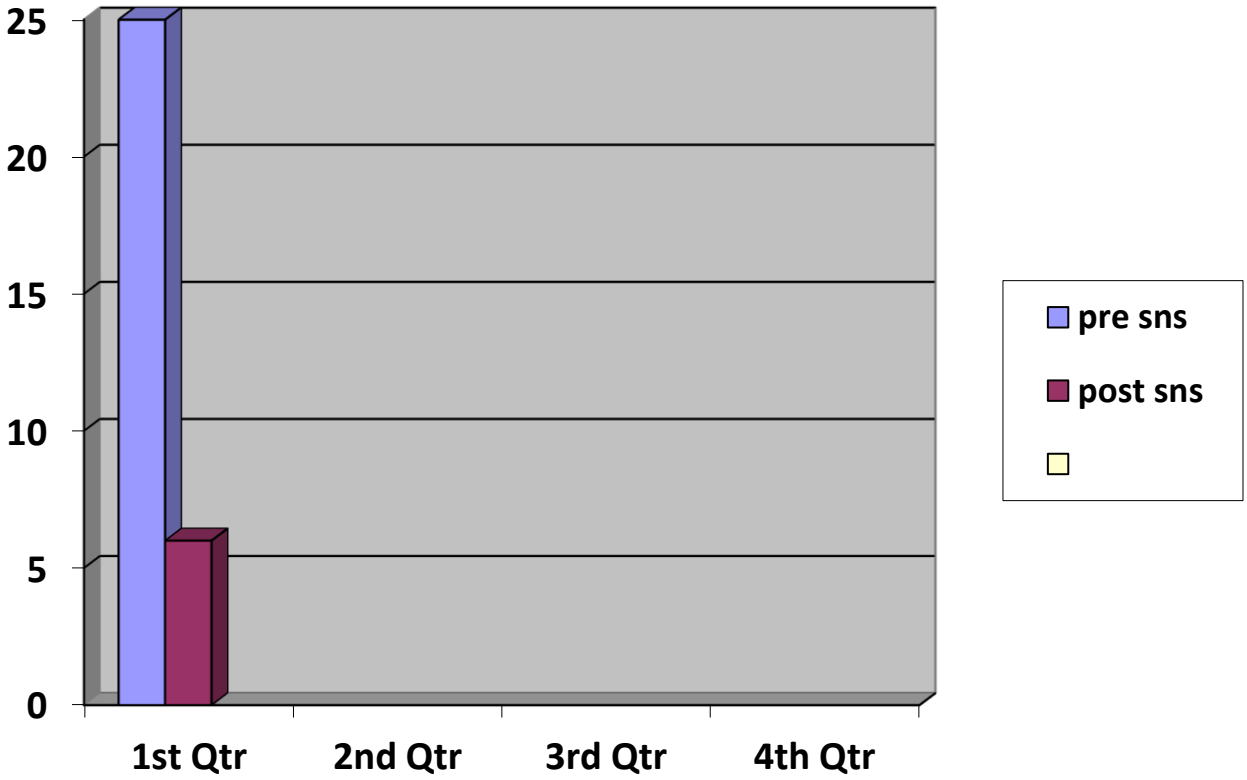
Hirschsprung disease is an evolutionary disease involving an intrinsic component of the intestinal nervous system characterized by the absence of ganglion in the submucosal and myentric retina in the distal intestine. The treatment method is removal of the intestine without ganglion and reconstruction of the intestinal tract by bringing the part with intestinal nerve down to anus **[**3**]**.One of the complication after this surgery in Hirschsprung is obstructive symptoms that can have different causes **[**4**]** . Common treatment for imperforate anus is the establishment of aloop colostomy, followed by reconstruction, and finally re-anastomosis of the colostomy **[**4**]**. A high percentage of these patients do not have normal bowel function in life and among them constipation and fecal incontinence the most common complains patients **[**4**]**. Functional constipation in children referred to constipation that is not associated with congenital disorders or problems and complications caused by drugs**[**1**]**.Chronic constipation has a prevalence of up30% especially in western societies. Constipation is also common in children and statistics show a12% prevalence in word **[**5**]**.SNS is one of the most effective methods of treating fecal incontinence, sphincter problems and also incontinence due to neurological problems**[**1**]**. That introduced since 1995**[**3**]**.

Presentation of case

A 11 years old girl who presented with refractory chronic constipation and occasional retention for nine years. Her Clevland Clinic Constipation Score (CCCS)was 25 in 11 years old. Constipation was relatively controlled with medication, but it became resistant to medication after a few years .Endoscopy ,upper GI series and colonoscopy results was normal. Colon and rectum biopsy results were not in favor of Hirschsprung disease and ganglion were present. She presented with refractory distention and partial obstruction. First, sigmoid loop colostomy was done for her due to severe distention. Seven months later, colostomy was removed, but she underwent loop ileostomy and rectal tube insertion 4 months later due to symptom relapse. A few days later, she came back with partial obstruction and underwent sigmoidectomy and resection of the ileostomy site. Surgical team decided to try temporary SNS for her to see the short term results.

Intervention and Results

After general anaesthesia and peroneal position. After prep and drep the electrodes were operated through S3 foramen and fluoroscopically to stimulate the sacral nerve and afterconnecting to the external generator, the correct position of the electrodes was ensured by the reaction of the muscles around theanuse (Figure1) .After two wqeeks, the patient had a greater than 50% improvement in bowel disfunction, then wqe proceeded with permanent implantation of the SNS subctaneusly overlying her right gluteus muscle 2 weeks later. Post operatively she maintained improvement in constipation with CCCS decresing from 25 pre-SNS to 6 post-SNS at 6 months follow up.(Figure2)



SNS: sacral nerve stimulation

Fig.1: Cleveland Clinic Constipation Score (CCCS)before and after treatment

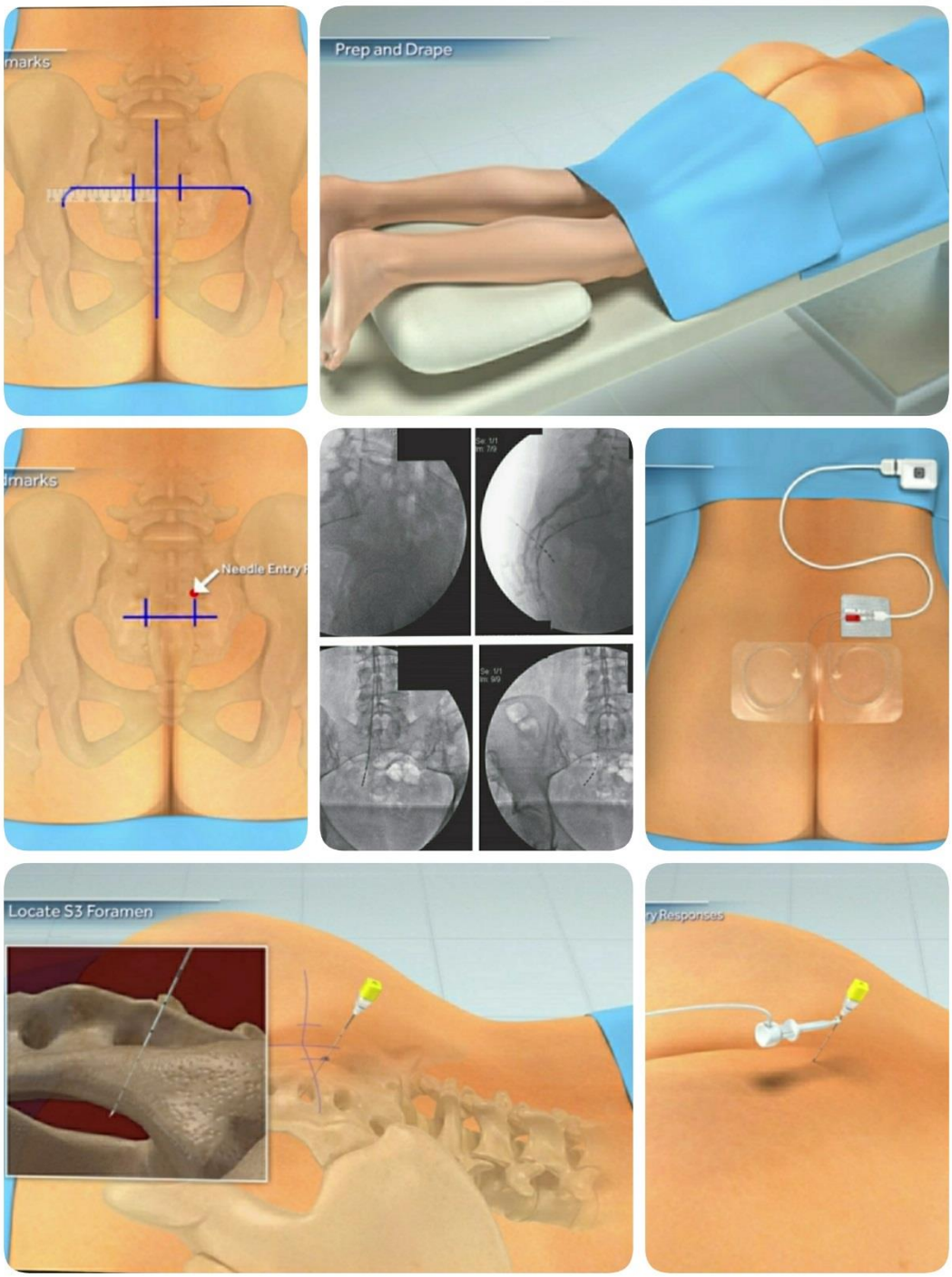


Figure.2: How to break the SNS device

Discussion

For the treatment of chronic constipation and incontinence, there are care methods such as lifestyle changes and behavious, the use of drug laxatives, biofeedback, and invasive and surgical methods **[**6**]**.SNS has less morbidity than surgery and can be tested and evaluated using peripheral nerve assessment before permanent implantation**[**3**]**.

According to this method electrode insertion through sacrum foramen, sacral nerve using electrical stimuli for improve or maintain sphincter function are stimulated**[**5**]**. SNS has been approved for refractory void dysfunction in the United States since 1997 and for fecal incontinence in 2011 **[**6**]**. Our finding showed that, Cleveland Score(CCCS) had improvement in constipation before and 6 months after SNS. CCCS of 25 pre-SNS to 6 post-SNS.

Conclusion

Sacral nerve stimulation can be effective in treating constipation in patients with chronic constipation. Of course, the need for more comprehensive studies is palpable.

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