

Disorders of Pelvic Floor Innervation and its Surgical Correction in Patients with Perineum Prolapse

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ABSTRACT

Introduction: In some patients with perineum prolapse, excessive straining during defecation can lead to neuropathy of the sacral nerve. The neuropathy of the sacral nerve progresses with an increase in prolapse. This leads to dysfunction of the pelvic floor muscles and exacerbates problems with emptying and retention of intestinal contents.

Aim of research: Improvements of the sacral nerve function in patients with perineum prolapse.

Material and Methods: The study group consisted of 52 patients with perineum prolapse with symptoms of obstructive defecation and anal incontinence I-II degree. To normalize the level of the perineum location, a surgical technique was used: abdominal sacrocolporectomy. Anatomic and functional results of emptying improvement were assessed using defecography. Electrophysiological examination of the function of the sacral nerve was performed using a multifunctional computer device Polygraf ID. The results were estimated in comparison with the baseline 3 years after the operation. To assess the restoration of nerve conduction, the study group included 52 patients who had achieved anatomical correction of prolapse.

Results: As a result of sacrocolporectomy, the perineum level was raised from -5.2 ± 0.8 cm to -2.8 ± 0.6 cm ($P=0.018$) at rest, which corresponds to normal indicators. When straining, these indicators were -8.8 ± 0.9 cm and -5.5 ± 0.7 cm ($P=0.001$), respectively. The voluntary contractility of the pelvic floor muscles also improved. Before the operation, the level of the perineum with a voluntary muscle contraction was -4.8 ± 0.6 cm, after the operation, -1.6 ± 0.5 cm ($P=0.000$). This led to an increase in the rate of barium evacuation from 3.3 ± 0.4 g / s to 5.2 ± 0.6 g/s ($P=0.010$) and a decrease in the residual volume of barium after its evacuation from 39.4 ± 5.7 % to 19.4 ± 5.1 % ($P=0.010$). In the postoperative period, there was an increase in the maximum pressure in the anal canal with volitional muscle contraction from 113.7 ± 8.7 mm Hg to 121.5 ± 6.8 mm Hg ($P=0.365$). The presented main indicators of the emptying and continent functions were directly proportional to the period of latency of the sacral nerve. Prior to surgical treatment, the latency period of the sacral nerve was 2.78 ± 0.5 msec, after surgery, 2.42 ± 0.4 msec ($P=0.576$).

Conclusions: Thus, as a result of the anatomical elevation of the perineum, the traction of the sacral nerve decreased and the period of its latency was shortened, which had a positive effect on the functions of the rectum.

Keywords: Perineum prolapse, Sacral nerve, Incontinence, Sacrocolporectomy

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