Rectocele Complicating a Double Anterior Lumbar Interbody Fusion: A Case Report

Alberic Fabrice Bocco¹, Louis Chenin², Djiby Jean-Marcel Okamon², Pierre-Henri Launois², Michel Lefranc² and Johann Peltier²

1) Department of Neurosurgery, Ibn Rochd University Hospital Center, Casablanca, Morocco
2) Department of Neurosurgery, University Hospital Centre Amiens-Picardie, Amiens, France

Keywords:
- anterior lumbar interbody fusion, complication, rectocele

The advantages of using the anterior approach are as follows: its ability to restore foraminal height, local disc angle, and lumbar lordosis, absence of neural retraction, and the sparing of paravertebral muscles. However, some complications associated with anterior lumbar interbody fusion (ALIF) have also been documented, and these are commonly visceral and vascular lesions. The rate of vascular complication is determined to be between 6.1% and 7.8% following ALIF. Meanwhile, the rate of incidental peritoneal opening was found to be at 3.9%, 4.3% for infection, and 3.3% for other complications. We present here an unusual case of rectocele in a female patient who underwent a double ALIF, and we also try to explain possible alterations that could contribute to rectocele formation.

A 39-year-old woman, with gravida 3 para 2 and had a previous surgery for ectopic pregnancy, had initially undergone double ALIF with Sovereign cage device (Medtronic) by pararectus approach for L5-S1 spondylolisthesis and L4-L5 discopathy. Her previous complaints included refractory low back pain and bilateral leg pain. On postoperative day 5, the scores for low back pain and leg pain were both at 2 on a visual analog scale. The postoperative computed tomography (CT) scan has demonstrated good placement of the cages at both L4-L5 and L5-S1 (Fig. 1). Pelvispinal balance was also examined by EOS X-ray. The patient was then discharged home. However, she later complained of functional constipation associated with pelvic pressure and urinary leakage, and a physical examination revealed a prolapse in the posterior wall of the vagina two months after lumbar surgery. Dynamic pelvic magnetic resonance imaging (MRI) was obtained in restraint and thrust and revealed a rectocele associated with cystoptosis (Fig. 2). The patient was referred to a gastroenterologist and visceral surgeon for follow-up and management.

The normal position of the uterus, bladder, and rectum constitutes an interdependent system formed by the pelvic bones, muscles, and suspension elements such as ligaments. The uterosacral ligaments connect the posterolateral aspect of the cervix to the second, third, and fourth sacral vertebrae. The levator ani muscles provide a muscular shelf on which the pelvic organs are supported.

Rectocele is defined as the bulging of the front wall of the rectum into the vagina due to the alteration of the system. The underlying causes remain undetermined. But, only the levator ani muscle avulsion has been associated with pelvic organ prolapse. The occurrence of rectal prolapse, in this case, can be explained as follows. First, denervation of the pelvic floor may have occurred due to excessive traction on the viscera, causing damage into the sacral roots. The innervation of the pelvic floor comes from the second, third, and fourth anterior sacral roots. The levator ani muscles provide a muscular shelf on which the pelvic organs are supported.

Second, during the fat dissection of Bogros space, the rectosigmoidal muscle of Nelaton, which is a rectosigmoid sphincter at S2-S3, may have been sectioned. This muscle participates in attaching the upper rectum.

Third, dysfunction of the abdominopelvic viscera can oc-
cur when the superior hypogastric plexus is damaged during an anterior approach to the lumbosacral spine. Mustain et al. described that pelvic surgery and conditions that chronically increase intra-abdominal pressure such as constipation can contribute to rectocele development. Lastly, the uterosacral ligaments of the cervix seem to reinforce not only fixation of the genital system but also of the pelvic rectum.

Therefore, it is important to report this unusual complication immediately to the attention of spine surgeons. Few things should be taken into consideration to avoid this disadvantage. For one, reducing the time of surgery may lessen the time of pressure effects on the viscera. In addition, prevention of postoperative constipation with less use of narcotic substances in patients with a history of bowel dysfunction is also seen to prevent pelvic organ prolapse.

**Conflicts of Interest:** The authors declare that there are no relevant conflicts of interest.
Ethical Approval: This study does not require any approval from the relevant institutional ethical review board because it is not a clinical and biomedical research involving human subjects.

Author Contributions: Alberic F. Bocco, Djiby J. Okamon, and Pierre-Henri Launois have drafted this case report. Meanwhile, Louis Chenin, Michel Lefranc, and Johann Peltier took charge in the study design and the revision of the drafted paper. All authors gave their final approval of the version to be published.

Informed Consent: Informed consent was obtained in this study.

References
1. Rao PJ, Ghent F, Phan K, et al. Stand-alone anterior lumbar interbody fusion for treatment of degenerative spondylolisthesis. J Clin Neurosci. 2015;22(10):1619-24.
2. Garg J, Woo K, Hirsch J, et al. Vascular complications of exposure for anterior lumbar interbody fusion. J Vasc Surg. 2010;51(4):946-50.
3. Quraishi NA, Konig M, Booker SJ, et al. Access related complications in anterior lumbar surgery performed by spinal surgeons. Eur Spine J. 2013;22(1):16-20.
4. Ashton-Miller JA, DeLancey JOL. Functional anatomy of the female pelvic floor. Ann N Y Acad Sci. 2007;1101:266-96.
5. Campbell RM. The anatomy and histology of the sacrouterine ligaments. Am J Obstet Gynecol. 1950;59(1):1-12.
6. DeLancey JO. The anatomy of the pelvic floor. Curr Opin Obstet Gynecol. 1994;6(4):313-6.
7. Dunnea CM, Khaskan AS, Kenny LC, et al. Prevalence, etiology and risk factors of pelvic organ prolapse in premenopausal primiparous women. Int Urogynecol J. 2014;25(11):1463-70.
8. You R, Costa P, Haab F, et al. Anatomie fonctionnelle du plancher pelvien [Functional anatomy of the pelvic floor]. Prog Urol. 2009;19(13):916-25.
9. Eid S, Iwanaga J, Chapman JR, et al. Superior hypogastric plexus and its surgical implications during spine surgery: A Review. World Neurosurg. 2018;120:163-7.
10. Mustain WC. Functional disorders: Rectocele. Clin Colon Rectal Surg. 2017;30(1):63-75.