A First Case Report of Torsion of the Substituted Small Intestine 39 Years after Vaginoplasty using Ileum Segment

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Abstract

Background: There are several methods of vaginoplasty. Though small intestine is not commonly used for vaginoplasty, we should know the operative procedures because we may encounter patients using small intestine for vaginoplasty.

Case: A 62-year-old woman who had undergone vaginoplasty using small intestine before, was taken to our hospital with a complaint of abdominal pain. She was diagnosed as torsion of the substituted small intestine by trans vaginal fiberscope test and enhanced Computed Tomography (CT), followed with urgent laparotomy. The pathological test was consistent with torsion of substituted small intestine.

Conclusion: We should know that the substituted small intestine could be twisted after vaginoplasty.

INTRODUCTION

Vaginoplasty has been performed by several methods for more than a century. Today, colon, small intestine, and, skin graft are commonly used for vaginoplasty, there is no consensus achieved which operation is the best because these methods have some postoperative complications, such infection, cicatrization, bleeding, carcinoma arising in a neovagina, and so on. This means that we should know the each operative method as we may encounter the complications after the surgery. Here, we report the first case of a 62-year-old woman who had a past history of vaginoplasty using small intestine, and exhibited torsion of the substituted small intestine. She was taken to our hospital with a complaint of abdominal pain, and she underwent an emergent surgery because the substitute small intestine used for vaginoplasty had been twisted.

CASE

A 62-year-old woman, gravida 0, para 0, visited a nearby hospital with a complaint of sudden onset of abdominal pain. She had a past history of constructing a neovagina using the ileum (Figure 1-A) at the age of 23 for congenital agenesis of vagina, Rokitansky-Kuster-Hauser syndrome. After vaginoplasty, the patient had regular sexual intercourse for 30 years, but had never had a sudden abdominal pain. Before onset of the sudden abdominal pain, she had felt light dull pain for a month. Trans vaginal fiberscope test at the nearby hospital revealed that right horn of neovagina was filled with fluid (Figure 1-B) and there was a screwed stenosis in the cavity, and the color of mucous membrane of twisted substituted intestine was changed to slightly white with ischemic change (Figure 2c). The end of left horn was confirmed to be closed (Figure 2b).

A try to release the torsion of substitute small intestine by fiberscope was failed. Then the patient was transferred to our hospital. When she arrived at our hospital, her vital signs were stable, and she showed abdominal tenderness and muscular defense in the upper abdomen. We also took the abdominal contrast enhanced CT to evaluate the position of torsion and the blood supply (Figure 3). It revealed the dilated and twisted neovagina and the blood supply for the twisted substituted small intestine was decreased. The blood examination test showed a slightly increased inflammatory response; White blood cells count 8300/mm3 (neutrophils 78%), C-reactive protein 0.12mg/dL. We consulted surgeons, and the patient underwent an abdominal operation. Intra-abdominal adhesions were severe
and right horn was dilated with pooled fluid and twisted with 270 degree in a clockwise manner, while left horn of neovagina was small in size.

The right horn which was dilated to 27cm in length was resected (Figure 4). The pathological test revealed that there were pathological findings of hemorrhage and edema in all layers which proved the torsion of substitute small intestine (Figure 5).

After resection, there was enough blood supply for the rest part of neovagina to be reserved. Four days after operation, the patient got to be paralytic ileus, but then, she was reversed gradually and discharged from hospital on 21 days after operation.

**DISCUSSION**

Sneguireff [1] reported the vaginal reconstruction using bowel in 1892 for the first time. Baldwin [2] in 1904 firstly performed the vaginal reconstruction by small intestine. Today, Ruge [3] methods of using colon or Davydov method [4] of using skin graft are more common. But the vaginal reconstruction using small intestine is also performed in a part of cases. Our case is probably performed with the ileal J-pouch vaginoplasty which was invented by Wolfgang et al [5] (Figure 1-A). Wu JX et al [6] reported eighty-six cases of laparoscopic vaginoplasty using an ileal segment. In the article, they reported three major surgical complications out of 86 cases in the postoperative period: intra-abdominal hemorrhage, meatal stenosis, and intestinal obstruction, but there was no case of torsion of substituted small intestine [6]. Our case is the first report of torsion of substituted small intestine. We can easily assume that there occurred abdominal pain by torsion of substituted small intestine because the vessels and nerves had been reserved at neovaginoplasty (Figure 1-A).

In our case, before the onset of torsion she had recognized dull abdominal pain for a month. At that time the substitute small intestine might gradually get to be swollen, and twisted. The most important point is why the substituted small intestinal started to pool fluid in the right cavity enough to be twisted. We did not check bacterial infection in fluid. Hiroi et al. [7] pointed that there occur chronic inflammation due to bacterial infection in the neovagina. This might be a possible explanation of pooling fluid in a neovaginal cavity, and sustained chronic inflammation might cause fluid pooling more and more. The pathological examination of resected small intestine revealed not only inflammatory cells...
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but also goblet cells, and paneth cells which were specific for intestines. There was no sign of the squamous metaplasia as in Davydov method using skin graft for vaginoplasty [8]. We speculated that small intestine was less vulnerable to the intra-vaginal inflammation due to the lack of squamous metaplasia.

Here, we reported the first case of torsion of the substituted small intestine. We must recognize that the substituted small intestine is able to be swollen and twisted after vaginoplasty.

CONCLUSION

A 62-year-old woman 39 years after vaginoplasty using small intestine, was taken to our hospital with a complaint of sudden-onset abdominal pain. The patient underwent emergent laparotomy with a diagnosis of torsion of the substituted small intestine. This is the first case report of torsion of the substituted small intestine.

REFERENCES


Figure 5 An image of pathological examination with hematoxylin-eosin staining. There was edema and hemorrhage in all layers which was compatible with ischemic change in strangulation. A bar represents 50 µm.