Anterior sagittal transrectal approach (astra) for vaginoplasty after complications of posterior sagittal anorectoplasty

Acesso sagital transretal anterior (astra) para vaginoplastia após complicação de anoretoplastia sagital posterior

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A B S T R A C T

Transperineal exposure of the high portion of the vagina is limited. These limitations can be circumvented using ASTRA (anterior sagittal transrectal approach). We report the use of this surgical strategy for the treatment of a case of acquired vaginal atresia after posterior anorectoplasty due to anorectal malformation.

Key words: Surgical procedures, operative. Urologic surgical procedures. Genitalia, female. Vagina/surgery. Treatment outcome.

INTRODUCTION

The classic accesses allow restricted depth exposure to "high" vaginal reconstructions. The Anterior Sagittal Transrectal Access (ASTRA) [1] enables proper exposure to congenital malformations of the mullerian system (urogenital sinus, atresia of vagina) and complex problems of the proximal urethra.

We report the use of ASTRA in the correction of an acquired distal vaginal atresia. This is, to our knowledge, the first report of ASTRA for this purpose.

TECHNICAL ASPECTS

This a case of an eight-months-old female infant with anorectal anomaly (retovestibular fistula), grade V left vesicoureteral reflux, neurogenic bladder and sacral agenesis.

At 20 days of age she underwent a posterior sagittal anorectoplasty. Tha procedure evolved with wound dehiscence, which was immediately re-sutured. A new dehiscence followed. A colostomy was then performed, the perineal lesion being treated with local care. There was shrinkage of the distal vagina and dehiscence of the perineal body. The patient presented with topic urethra and anus, absence of vaginal orifice in the perineum and failure of the perineal body (Figure 1).

The transabdominal and transperineal ultrasonography showed the proximal two thirds of the vagina at a distance of 2 cm from the skin.

The neurogenic bladder was treated, obtaining continence in the intervals of clean intermittent catheterization (CIC). The child then underwent reconstruction of the vagina and perineal body using the ASTRA.

The patient was prone positioned with pelvis elevation and abduction of the hips. Correct positioning of the anus with respect to continence muscles was confirmed by muscle stimulation. We made an anterior sagittal transperineal access, extended to the anterior wall of the rectum, in the midline by about 4cm (ASTRA) (Figure 2). The rectum was retracted toward the sacrum. Upon ventral dissection in the midline, the posterior vaginal wall was found (recognized by the muscular consistency and nacreous wall) and mobilized to an extent sufficient to a tensionless suture to the perineum. The anterior rectal wall was sutured and the perineal body rebuilt.

The urethral catheter was maintained for 72 hours. The child progressed uneventfully and was discharged on the third postoperative day. After four months she presents with an anatomically normal perineum, without

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Figure 1 - *Appearance of the perineum prior to the vaginoplasty with ASTRA.*

vaginal stenosis. She is in preparation for closure of the colostomy.

DISCUSSION

The difficulty to expose vaginal stumps too far apart from the perineum with pure sagittal transperineal accesses is widely recognized. In 1982 [2], the posterior sagittal access proposed to the patient was quickly extended for the treatment of urogenital malformations (prostatic utricles, urethral strictures, atresia of the vagina, urogenital sinus), sectioning the anterior and posterior recatl walls in the midline [3] or incising the muscles in the median raphe and preserving the rectum integrity (laterally retracted) [4].

Wishing to preserve the sphincter muscles posterior to the rectum, ASTRA was initially proposed and popularized by the Italian surgeon Roberto Castro. The first results of its use for the treatment of vaginal malformations were published by the group of pediatric surgery at the University of Catania, Italy [1] initially adopting a protective colostomy. Later the safety of ASTRA was proved, with no need of colostomy, nor special postoperative diets (patients fed according to the usual clinical parameters and with early discharge) [5]. Others have suggested an adaptation in which the rectum is dissected in the anterior-lateral planes and retracted posteriorly, without opening the anterior wall, with the claim of avoiding some of ASTRA's risks. In our experience, this variation has enabled a more restricted exposure than ASTRA has [5].

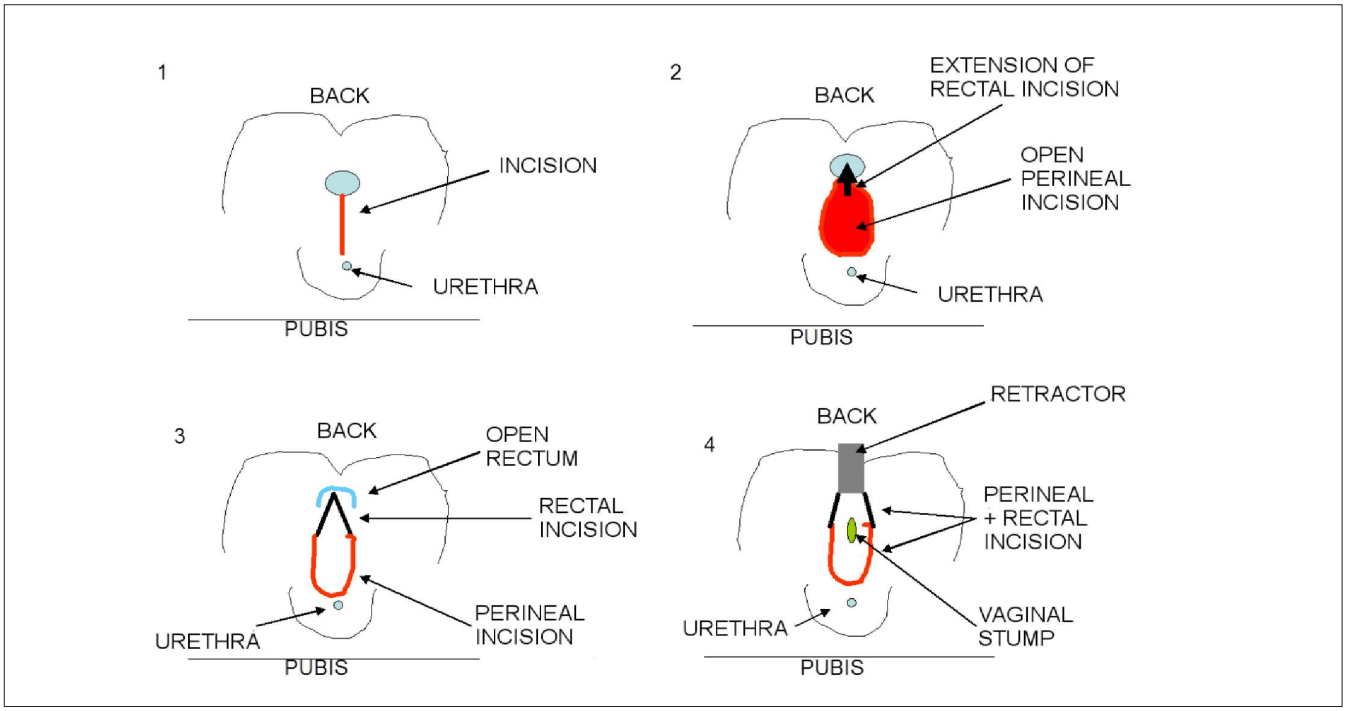

Figure 2 - *Schematic of the technique: (1) patient in prone position with elevated pelvis; midline incision of the perineum; (2 and 3) extension of the perineal incision in the anterior wall of the rectum; (4) exposure of the perineum in depth after posterior mobilization of the incised rectum and visualization of the vaginal stump (approximately 2cm from the mucocutaneous surface).*

Most published cases of ASTRA describe the correction of congenital mullerian system malformations in pediatric patients. Despite the fragility of the tissues, dissection is easier than in post-pubertal patients, with less bleeding and better definition of anatomical planes [5]. A preoperative evaluation of the distance to the perineal surface and length of the vagina is important for planning, assessing the level of difficulty and type of access required. To vaginas very close to the surface, ASTRA is unnecessary. For extremely shortened vaginas, vaginal mobilization to the perineal surface may not be possible and the surgeon will have to use additional techniques, even with exposure facilitated by ASTRA. In such cases, it is necessary to evaluate the age of the patient for surgery: several surgeons advocate delaying the correction to the pre-pubertal age or when the patient wants to adopt an active sex life, with preemptive blocking of menstruation in cases of vaginal atresia. Reconstruction techniques with complex flaps or replacement by other vaginal tissues may present with postoperative stenosis and require systematic and repetitive dilation of the vaginal canal, which we do not deem necessary in children after tension-free autochthonous vaginal lowering.

A careful reconstruction of the perineal body is important to provide support to the anterior rectum, to separate the rectum from the vagina and probably to avoide dyspareunia in the adulthood.

None of the articles published ASTRA papers cites problems with continence and there is only one case of postoperative infection, treated with colostomy [5].

In conclusion, ASTRA is an efficient and safe technical resource to improving transperineal exposure of deep structures and should be incorporated into the armamentarium of surgeons involved in vaginal reconstruction.

RESUMO

*A exposição transperineal de altas vaginas é limitada. Essas limitações podem ser contornadas usando ASTRA (*anterior sagital transrectal approach*). Relatamos o uso desta estratégia cirúrgica para o tratamento de um caso de atresia vaginal adquirida, após anorretoplastia posterior, em caso de malformação anorretal.*

Descritores: *Procedimentos cirúrgicos operatórios. Procedimentos cirúrgicos urológicos. Genitália feminina. Vagina/cirurgia. Resultado do tratamento.*

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