Novel surgical strategy for treatment of abnormal cavernous (balloon-like penile) resulting in sex disability

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Abstract

Background
Cavernous malformations can result in erectile dysfunction and sex disability. Several treatment strategies are available and we introduce a novel surgery method with vascular mesh.

Methods
A 23-years old man who had normal erection but he was not able performs coitus and his penis bent. He was operated for ventral chordee with misdiagnosis of chordee and then treated with injection of papaverine because of the misdiagnosis of erectile dysfunction (ED), but the problem remained unsolved. We decide to have novel surgery method using vascular mesh. Our surgery was completely successful and our new method of surgery can take the place of penile implant for such cases.

Results
In both regions, BMD was significantly lower in patients compared to the control group (P < 0.01). Besides, there was a significant correlation between duration of urinary stone and BMD in each of the mentioned areas (P < 0.001, r = -0.73 in the lumbar spine, P < 0.01 and r = -0.52. in the femoral neck). Additionally, BMD showed no association with age and BMI in any of the areas.

Conclusion
our technique with vascular mesh can be considered as the most efficient method to make the cavernous retain the normal function.

Key words: vascular mesh, erectile dysfunction

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1. Introduction

The penis is made of three cylindrical bodies of endothelium-lined cavernous spaces: the paired dorsolateral corpora cavernosa, and the single, ventral and midline corpus spongiosum (1). The corpora cavernosa is covered with tunica albuginea, a skinny membrane that with about 2 mm thickness in the time of flaccid penis and 0.25 mm in the erection time (2, 3). The principal of erection has not been understood completely yet. Having a normal male sexual function is completely dependent on normal erection. Male erectile dysfunction is the steady or frequent incapability to attain and/or keep penile erection enough for sexual performance (4). Epidemiological studies pointed that erectile dysfunction is a general problem in aging males and it has been expected that by 2025 it will influence about 350 million men all over the world (5). In addition to age, some psychological, neurological, hormonal, arterial, or cavernosal impairment and more frequently, from a combination of these factors can result in erectile dysfunction. Here we represent a very rare case of abnormal cavernous which result in erectile dysfunction and our novel therapy recommendation.

2. Case Presentation

We present a case of a 23-years married man referred to the department of urology and complained about sexual dysfunction because in spite of the erection he was not able perform coitus. Actually, the patient complaint was inability to perform coitus because of not having rigid straight erection and he had described to his surgeon that his penis had ventral deviation.

This erectile dysfunction had reported by the patient six months before as well, and that time the urologist had misdiagnosed ventral chordee. Nesbit operation had done over the patient as the useful procedure for the correction of congenital or acquired chordee. Unfortunately because of the lack of rigidity in cavernous the surgeon was made to have several plication sutures during surgery with no beneficial result. During the surgery we found out that the tunica albuginea of penis did not have enough strength. Also in preoperative physical examination we induce erection with injection intra-cavernous Papaverin and we could bend penis to every direction despite the patient had enough erection (figure 1).

In the Color-Doppler ultra sonography no evidence of tunica albuginea abnormality of cavernous were seen. Moreover, no Peyroni’s plaque or fibrosis was reported. The usual approach for treatment of similar complication is implanting penile prosthesis.

In our technique, with considering that lack of penis rigidity can be the result of cavernous smooth musculature abnormality, multiple vascular meshes were placed in order to increase the strength of surrounding tunica albugina. During the surgery, first the penis was degloved and then the erection was induced by papaverine injection. We confirmed the lack of rigidity of cavernous in middle shaft of penis. After that the erection has removed and all neurovascular bundle (NVB) from dorsal, lateral, and urethra from ventral were released.

With injection of normal saline artificial erection was created and all leakage were sealed meticulously (figure 2).
Our prior plan for surgery was using mesh completely all around cavernous. But during surgery we observed it is not necessary to place mesh on urethral bed. The surgery continued by placing multiple vascular meshes in the form of circular and longitudinal and the urethral bed left without mesh.

For the inner layer of mesh, we used GORETEX vascular mesh to have enough strength and we placed them with enough distance between meshes to not restrict increase length during normal erection.

The outer layer of mesh is formed by placing longitudinal DACRON vascular mesh to fill up the gaps between GORETEX and saving the normal function of erection via their flexible nature of DACRON mesh. The logic behind the technique is based on different between balloon and tire. Both of them are flexible when they are flat, but when they are inflated, their rigidity are not equal because of different strength of material.

Finally the skin was repaired by monocril and the patient was discharged after one week having folley catheter and ten days medication (figure 3).

Follow-up after two and six week showed the significant improvement of patient. After one year the patient had no problem and our result of surgery was completely satisfying (figure 4).

Our suggestion is that our new technique of surgery takes the place of penile implant for such cases.

3. Discussion

Some problem like Peyronie’s disease, trauma or having previous surgery can have resulted in acquired curvature of the penis (6). In our 23 years old patient with no history of trauma or related disease in spite having erection, he was not able do coitus because his penis bent.

The abnormality of penis cavernosa ranges from congenital disease to acquired disease such peyronies disease, trauma, etc. The first and straight treatment for our patient was using penile prosthesis. But with considering the underlying pathology of our patient we decided to perform new surgery technique. In order to increase the strength of tunica albugina, we used vascular mesh instead if allograft material because we need to cover large surface of cavernousa. Although using vascular meshes may have same complication as penile prosthesis such as the possibility of infection but still normal erection function remain intact. The result of our novel treatment is promising with significant benefit for the patient.

The plication procedures for Peyronie’s disease and some other penile deformities are suggested as well (7-9). Implanting penile prosthesis as a new type of paired sponge-filled silicon prostheses can be another treatment surgical strategy (10-12). In our case the plication procedures was not effective and the surgeon was made to think about another surgical method. We choose placing multiple vascular meshes which the
mechanism of its action is partially same as implanting penile prosthesis. The result of our novel treatment strategy was completely satisfying with no remaining complication for the patient. In comparison to prosthesis the expenses of meshes is lower. More than that if the prosthesis be the inflatable one the patients will be dependent to some accessory instrument and self confidence of patients decreases (13). In fact meshes are suggested as the treatment strategy before the prosthesis. That means if meshes do not work the final surgery substitution method can be prosthesis but if the prosthesis failed the other substitute is not available.

So there are some difficulties connected to the other surgical methods like infectious complication involving placement of a penile prosthesis (14, 15). One year follow-up of our case after established that using of multiple vascular meshes had not any complications like inflatable or infection. We suggested this method with high efficacy and safety in patients like our case. After one year follow-up of our patient he had does not have any complications. After one year follow-up of our patient he had does not have any complications.

Taken everything into the consideration, our technique with vascular mesh can be considered as the most efficient method to improve the cavernous strength.

4. Acknowledgments

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5. Conflict of interests

All authors claim that there is not any potential competing or conflict of interest.

6. References

6. !!!! INVALID CITATION !!! (6-8).