

## The Use of Z-plasty for Reconstruction of Short Vagina after Total Hysterectomy.

Azzam Farroha, MD,  
Specialist Plastic Surgeon, Ministry of Health, Baghdad, Iraq.  
E-mail: [asfarroha@yahoo.com](mailto:asfarroha@yahoo.com)  
Hala Hanna,  
Specialist Gynecologist, Ministry of Health, Baghdad, Iraq.

### Abstract

Total hysterectomy leads to vaginal shortening that might cause dyspareunia. This series included six patients with this complain. The classical Z-plasty technique was used in the way that the central limb of the Z-plasty was drawn on the longitudinal posterior column of the posterior vaginal wall starting 4 cm above the vaginal vestibule in upward direction. In addition to the gain in length, the Z-plasty tightened the upper part of vagina. This technique was safe as no complication was reported. And it was effective as no patient reported dyspareunia postoperatively.

### Background

Vaginal length may impact on sexual function. The average length of the posterior vagina wall is 9 cm [1]. A short vagina is one of the sequels of total hysterectomy, which might cause dyspareunia in some patients [2, 3].

The Z-plasty is one of the most widely used techniques in plastic surgery, which consists in transposition of two triangular shaped flaps [4]. The classic Z-plasty has an angle of 60 degrees and provides a 75% theoretical gain in length of the central limb by recruiting lateral tissue [5].

Z-plasty had been used safely and effective to reconstruct vaginal constriction [6-8]. But Z-plasty has not been used for reconstruction of short vagina.

### Patients and Methods

This series included six patients who presented with dyspareunia. The ages of these women ranged from 35 to 58 years. All six patients underwent total hysterectomy 2-3 years before presentation. On examination, all these patients had short vagina, measurements of the posterior vaginal wall were 6.5-7cm. This study did not included patients with vaginal length equal or less than 6 cm. In addition to short vagina, two of the patients also complained of lax vaginal outlet.

Other causes of dyspareunia, as infection and tumors, were excluded. None had psychogenic sexual dysfunction or relationship problems. The patients' spouses had average penile length (12-15 cm in erection). Conservative treatments were tried as using lubricant and mould, but they remained complaining of dyspareunia.

The new surgical technique was performed by designing a Z-plasty on the posterior vagina wall. The central limb of the Z-plasty was drawn on the longitudinal posterior column of the posterior vaginal wall. The lower end of the central limb started at 4 cm above the vaginal vestibule to avoid injury to the pelvic floor. The length of the central limb was 2 – 2.5 cm, depending on the length of the vagina. The lateral limbs were drawn at about 60° angle with the central limb. The flaps were carefully dissected to the level of the relatively avascular connective tissue, and they included of mucous membrane and smooth muscle. The flaps were secured by absorbable sutures.

For the two patients complaining of lax vaginal outlet, posterior colpoperineorrhaphy was performed in addition to the Z-plasty. All patients were kept in the hospitals for 1-2 days. The Foley's catheter and vaginal pack were removed the morning after surgery and gradual ambulation was started. All patients resumed sexual activities with their spouses in the sixth week after surgery. Follow-up of the patients was for one year.

### Results and Discussion

No postoperative complication was recorded. The morbidity and mortality rates were zero.

One month after the surgery, the posterior vaginal walls of these patients were measured. These measurements showed significant increase in length (7.5-9cm), there was 1-2 cm gain in length. Also, the upper vaginal width decreased.

At follow-up none of the patients reported dyspareunia, due to elongation of the vagina by Z-plasty. Also their

spouses expressed better sexual satisfaction, due to decrease vaginal width, because the Z-plasty used the adjacent redundant vaginal tissue for elongation.

### Conclusions

- This method was safe.
- The improvement was due to vaginal elongation and decrease vaginal width.
- This method was effective for reconstruction short vagina with average lengths 6.5-7.0 cm.
- The team work between plastic surgeons and gynecologists is very important to improve the quality of health services provided for the patients.

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