


Laser Vaginal Tightening Complications: Report of Three Cases

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Background and Objectives: Laser vaginal tightening (LVT) outpatient procedures have become increasingly popular for cosmetic reasons, for enhancement of sexual functioning and to treat vaginal laxity, mild pelvic organ prolapsed (POP), and urinary incontinence, although scientific short- and long-term evidence is lacking.

Study Design/Materials and Methods: Report of three patients with vaginal laxity who previously underwent LVT procedures.

Results: Three premenopausal women who previously underwent LVT for vaginal laxity but had no improvement. On subsequent posterior vaginal repair procedures, their vaginal mucosa was found to be scarred or friable, making surgery and dissection more difficult.

Conclusions: LVT procedures lack scientific evidence of safety and efficacy regarding management of mild POP and vaginal laxity, and healthcare providers should counsel and educate their patients of the potential risks, some of which is still unreported. *Lasers Surg. Med.* © 2019 The Authors. *Lasers in Surgery and Medicine* Published by Wiley Periodicals, Inc.

Key words: vaginal laxity; pelvic organ prolapse; laser vaginal tightening

INTRODUCTION

Pelvic organ prolapse (POP) is a common condition, negatively affecting the quality of life of women. The lifetime incidence of POP surgery among women in the United States reached 13% [1]. Treatment options include nonsurgical “conservative” and surgical approaches. After failed conservative approaches, surgical treatment remains the gold standard for treatment of POP [2]. Recently, there has been a surge in female genital cosmetic surgeries (FGCSs), including laser vaginal tightening (LVT) outpatient procedures, using fractional CO₂ and erbium YAG laser, has become increasingly popular among physicians and women for cosmetic reasons, for enhancement of sexual functioning and to treat vaginal laxity [3–5], as well as to treat mild POP and urinary stress incontinence, although without obvious scientific evidence [4].

The purpose of this report was to report three cases of women who underwent LVT. On subsequent vaginal

surgery, there appeared to be vaginal epithelial changes that made the surgery difficult. Therefore, we draw the attention of physicians toward the potential risks and complications of LVT that have not been previously reported.

CASES REPORT

Case 1

A 52-year-old perimenopausal P7 woman presented with symptoms of a mild vaginal bulge, feelings of vaginal laxity with intercourse, vaginal wind, and needing to splint for defecation. She had no previous pelvic surgery and no difficult delivery.

On examination, her weight was 52 kg, and pelvic exam showed a wide genital hiatus of 4 cm, and stage 1 POP-Q posterior prolapse. There was no prolapse of other walls and no evidence of atrophy.

She underwent two sessions of Er:YAG LVT, 1 month apart, approximately 1 year earlier, but no details were available of how sessions were conducted, if either ablative or non-ablative, nor the pulse duration.

She did not find any benefit of LVT for the vaginal laxity, and after counseling, she underwent a posterior vaginal repair. During the procedure, the vaginal mucosa was found to be rigid, scarred, and difficult to dissect from the underlying tissues, which made the procedure difficult.

Nevertheless, the surgical procedure went well, with average blood loss. Postoperatively, she recovered well,

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and the vaginal mucosa had healed well at the 6-week follow-up.

Case 2

A 36-year-old P4 woman presented with the main symptoms of vaginal laxity with intercourse, vaginal wind, but no bulge per vagina. She had no previous pelvic surgery and no record of difficult deliveries. On examination, her weight was 56 kg, and pelvic exam showed a wide genital hiatus of 4 cm, stage 1 POP-Q posterior vaginal prolapse, and stage 1 anterior vaginal prolapse.

She underwent two sessions of CO₂ LVT 1 month apart, around 1 year earlier and found only minimal benefit. After counseling, she underwent a posterior vaginal repair for treatment of vaginal laxity. During the procedure, the vaginal mucosa of the lower vagina was found to be scarred, and difficult to dissect from underlying tissues, which made the procedure difficult.

Nevertheless, the procedure went well, with average blood loss. Postoperatively, she recovered well, and vaginal mucosa had healed well at the 7-week follow-up.

Case 3

A 39-year-old premenopausal P6 woman presented with symptoms of vaginal laxity with intercourse, vaginal wind, and bulge per vagina. She also complained of stress urinary incontinence (SUI). On examination, her weight was 64 kg, and pelvic exam showed a wide genital hiatus of 4 cm, stage 2 POP-Q posterior prolapse and stage 2 anterior prolapse, and positive cough stress test.

She underwent four sessions of Er:YAG LVT, 1 month apart, with the last session 1 year before presentation; but found no concerning prolapse, laxity, or SUI.

After counseling, she underwent a posterior vaginal repair, as well as retropubic mid-urethral tension-free vaginal tape. During the procedure, the vaginal mucosa was found to be very thin, friable, with loss of rugae, similar to that of a postmenopausal woman, tearing with the handling of tissues, and that made the procedure difficult. Nevertheless, the procedure went well, with slightly higher blood loss than usual. Postoperatively, she recovered well, with no prolapse or incontinence symptoms, and her vaginal mucosa had healed well at the 5-week follow-up.

DISCUSSION

FGCS has been reported to be safe, effective, and noninvasive for cosmetic purposes and for improving sexual functioning in women with acquired vaginal laxity sensation; it has become widely used currently among physicians as an outpatient procedure [3,4]. Laser techniques were used widely in the dermatology and plastic surgery fields to treat common dermatological conditions. It has been recently used to treat vaginal laxity, and aging atrophied skin by using a laser beam leading to the destruction of epidermis and dermis, subsequently leading to new blood flow, new collagen and elastin fiber formation through a wound healing

process that results in tightening of that area [5]. These non-invasive procedures are offered as an outpatient procedure using fractional CO₂ laser and erbium YAG laser [6,7].

Multiple researchers have reported concerns regarding these procedures. First, there has been poor evidence regarding the efficacy of laser vaginal tightening. Second, most of the reported studies were conducted in small trials marred by methodological bias. Third, surgical outcomes and post-procedure complications such as fibrosis and skin fragility, are not assessed well, and this should be achieved by scientific evidence and large clinical randomized trials [6,7].

Potential complications raised by some researchers include infections, fibrosis, tissue remodeling and damage, pain, dyspareunia, and altered sensation [6]. The American College of Obstetricians and Gynecologists in 2007 stood against vaginal rejuvenation and cosmetic vaginal procedures because there was no evidence supporting the efficacy and safety of these procedures [8].

Nevertheless, fractional CO₂ laser has been introduced in 2011 and used in women with vaginal atrophy and showed improvement of the vaginal mucosa and decreased dyspareunia symptoms, but with no strong evidence in treating laxity or POP [9]. A recent study found CO₂ LVT is effective in improving vaginal atrophy and itchiness among post-menopausal women with favorable outcomes and without adverse events [10].

In 2019, an analysis was conducted regarding LVT procedures and found that the most common indications were unspecified and the most reported complications and adverse effects was pain followed by numbness or burning sensation and scarring. This review raised a concern regarding the unclear setting and circumstances regarding these events [11].

This might be an issue in future vaginal deliveries; nevertheless, to date, there is no record of such adverse effects. We realize that these findings are subjective and could be sporadic and unrelated to the LVT procedures they underwent. Nevertheless, because we rarely face such findings in routine cases, we related this to the LVT they underwent.

CONCLUSION

LVT procedures lack scientific evidence of safety and efficacy for management of women with mild POP and vaginal laxity, and some rare complications are still possibly unreported and might not appear until later. Physicians should be cautious and must counsel women seeking LVT for potential complications and the possibility of reoperation.

Consent

Informed consent was obtained from all three patients.

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