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Original Research Article

Treatment results of female pelvic organ prolapse by surgical placement of synthetic vaginal mesh: a prospective study at An Giang obstetrics and pediatrics hospital

Quang Hien Tran[1,2]*

[1]An Giang Department of Health, An Giang, Vietnam
[2]Depatment of Obstetrics and Gynecology, An Giang Women and Children's Hospital, An Giang, Vietnam

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***Correspondence:**
Dr. Quang Hien Tran,
E-mail: tranquanghienag@yahoo.com

ABSTRACT

Background: Pelvic organ prolapse is a common condition in Vietnam. At An Giang obstetrics and pediatrics hospital, vaginal mesh surgery for the treatment of female pelvic organ prolapse has recently been introduced, which is a new technique for the hospital and requires evaluation and research. This study aims to evaluate the treatment results of female pelvic organ prolapse by surgical placement of a synthetic vaginal mesh at An Giang obstetrics and pediatrics hospital in 2020-2021.
Methods: Cross-sectional descriptive and prospective study. All women diagnosed with pelvic organ prolapse stage II or higher according to POP-Q criteria who underwent vaginal mesh placement surgery.
Results: The study results of 47 cases of pelvic fractures showed that the average age of patients was 67 years old. The main anesthesia method was spinal anesthesia, accounting for 91.5%. The average surgery time was 97.1±21.2 minutes. The average blood loss during surgery was 70.2±55.5 ml. The average length of hospital stay was 6.1±1.9 days.
Conclusions: The effectiveness of the surgical method of placing a synthetic vaginal graft for the treatment of female pelvic organ prolapse achieves a success rate of 95.7%. 98% of patients express satisfaction with this surgical method and are enthusiastic about recommending this surgical method to other women.

Keywords: Pelvic organ prolapse, Vaginal graft placement, Surgical outcome

INTRODUCTION

Pelvic organ prolapse is a condition that does not pose a danger to the life of women, but it significantly affects daily activities, work, as well as mental health in general, it greatly impacts the quality of life of women.[1,2] Pelvic organ prolapse is a fairly common condition in Vietnam. According to statistics from the Central obstetrics and pediatrics hospital, the prevalence of this condition is about 20% in women of reproductive age, and nearly 80% in women aged 40-50.[3] Treatment of pelvic organ prolapse in women depends on the severity of the condition. Mild cases can be managed with conservative measures such as pelvic floor muscle training, pessary support, or hormone replacement therapy.[3,4] In the past, surgical treatment for stage II-III pelvic organ prolapse mainly involved hysterectomy, cervicectomy, and vaginal reconstruction procedures (Crossen surgery, Manchester surgery). However, if only the cervix is cut, it will impair the pelvic support system and lead to posterior prolapse, studies show that about 40% have posterior prolapse after hysterectomy.[5] In Vietnam, mesh placement surgery through the vagina or abdomen using laparoscopy to lift the pelvic floor in female pelvic organ prolapse has been performed at Tu Du Hospital since July 2009 and at Hue Central Hospital since April 2009.

METHODS

All women diagnosed with stage II or higher pelvic organ prolapse according to the POP-Q classification, who came for examination and treatment at An Giang obstetrics and pediatrics hospital from January 2020 to October 2021.

Inclusion and exclusion criteria

Sample selection criteria were; All women diagnosed with stage II or higher pelvic organ prolapse according to the POP-Q system with an indication for vaginal mesh placement surgery. Stage II or higher pelvic organ prolapse without contraindications for mesh placement. Patients requesting mesh placement surgery after being fully evaluated and counselled on all treatment options. Patients consenting to participate in the study. Exclusion criteria were stage I haemorrhoids or below and contraindication to mesh placement.

Data entry and management were conducted using Microsoft Office 365. Statistical algorithms were processed using SPSS software version 26.0. Calculating the frequency and percentage for categorical variables. Statistical significance was considered when $p<0.05$.

RESULTS

During the research period from January 2020 to October 2021, we collected 47 patients diagnosed with stage II or higher pelvic organ prolapse and treated with surgical placement of a synthetic vaginal mesh at An Giang obstetrics and pediatrics hospital. The results of treating female pelvic organ prolapse with surgical placement of a synthetic vaginal mesh are as follows. A study found that 46 patients were anesthetized with spinal anesthesia, accounting for 91.5%, while only 4 patients had to undergo endotracheal intubation anesthesia, accounting for 8.5% (Table 1). The average surgical time is 97.1 minutes, with the fastest surgery taking place in 50 minutes being the simple anterior vaginal wall grafting. The longest surgery lasting 130 minutes is the surgery grafting both vaginal walls (Table 2).

Table 1: Anesthesia method in surgery (n=47).

Methods	N	%
Spinal anesthesia	43	91.5
Endotracheal anesthesia	4	8.5

Table 2: Surgical time.

Surgical time (minutes)	Average (minutes)	Shortest (minutes)	Longest (minutes)
Average surgical time	97.1±21.2	50	130

Among 47 surgical patients, 13 patients had the graft placed in the front, accounting for 27.7%, followed by the group of patients with grafts placed in both sides, with 34 patients accounting for 72.3% (Table 3). The average blood loss in surgery is 70.2 ml, with the least blood loss being 10 ml in the simple vaginal reconstruction surgery. The highest blood loss is 400 ml in the surgery reconstructing both vaginal walls (Table 4). In our study, the hospital stays of <7 days accounted for the highest proportion of 82.0%, ≥7 days had 9 cases accounting for 18.0%, and the average postoperative time was 6.1 days (Table 5).

Table 3: Distribution of puzzle piece placement (n=47).

Position	N	%
Anterior wall	13	27.7
Both walls	34	72.3

Table 4: Average blood loss in surgery.

Blood loss (ml)	Average (ml)	Min (ml)	Max (ml)
Blood loss in surgery	70.2±55.5	10	400

Table 5: Time at the hospital after surgery (n=47).

Time at the hospital (day)	N	%
<7	41	87.2
≥7	6	12.8
Average time at the hospital (days)	6.1±1.9	

DISCUSSION

Anesthesia method in surgery

In the study, 43 patients were anesthetized during surgery by spinal anesthesia, accounting for 91.5%, only 4 patients had to be intubated with endotracheal anesthesia, including 2 patients who were switched due to unsuccessful spinal anesthesia, the remaining 2 patients had to be intubated due to cardiovascular disease, accounting for 4.3%. So spinal anesthesia is a common method applied, in fact at An Giang obstetrics and pediatrics hospital, with short surgeries all being anesthetized by spinal anesthesia. This is a simple, easy-to-implement method, not requiring much technical equipment, achieving quick pain reduction effectiveness.

The duration of pain relief lasting for a surgery within 2 hours is suitable, promoting quick patient recovery. Authors Nhi et al and Vinh et al also discuss this issue and provide appropriate evaluations consistent with the research findings.[6,7]

The placement of the puzzle piece and the surgical time

In the study, there were 13 cases where the graft was placed in the front only, accounting for 27.7%, while the remaining 34 cases had the graft placed in both vaginal

walls, accounting for 72.3%. The average surgical time for vaginal reconstruction surgery is 97.1±21.2 minutes, with the fastest surgery being the anterior vaginal wall reconstruction, taking place in 50 minutes, and the longest surgery lasting 130 minutes, which is a surgery to reconstruct both vaginal walls. According to Nhi et al the time to place the puzzle piece in front of the vagina is 32±24 minutes; the time to place the puzzle piece behind the vagina is 48±14 minutes; the time to place both pieces into the vagina is 73±16 minutes.[6]

In this way, the time to place the graft piece anteriorly is faster than placing the graft piece posteriorly, the reason being that the dissection of the vaginal mucosa anteriorly is more familiar to gynecological surgeons, who are already very familiar with classic lower abdominal surgeries in the treatment of pelvic organ prolapse such as Crossen surgery, Manchester surgery, or cut the uterus through the vagina. When performing the surgery to place the graft behind, the surgeon must peel off the mucosa behind the vagina to the rectal mucosa vagina, and peel off widely on both sides of the rectal edge, the peeling behind is mainly done by hand so it is more difficult, prolonging the surgical time.

The duration of each type of surgery in the study is also longer compared to Nhi et al because this is a new technique applied at An Giang obstetrics and pediatrics hospital, where doctors are not yet proficient in this surgery, causing the surgery time to be prolonged.[6] According to Vinh et al the average surgery time for simple vaginal hysterectomy, without repositioning the anterior and posterior vaginal walls, is 85 minutes.[7] Therefore, with this technique, the surgical time is shorter compared to the Crossen surgery commonly used in the treatment of pelvic organ prolapse, and significantly shorter than the total vaginal hysterectomy technique in patients without pelvic organ prolapse. When surgeons are proficient with the new method, the surgical time will gradually shorten as this is a minimally invasive and not overly complex surgery.[8-11]

Blood loss in surgery

The average blood loss in surgery is 70.2±55.5 ml. According to Nhi et al the blood loss when placing the graft behind is 41±22 ml, in front is 46±22 ml, and both behind and in front is 56±23 ml.[6] This result differs from the reported study; in this study, the blood loss for each type of surgery is higher than that of the author Nhi et al.[6]

The reason for this is that at BVSNAG, the surgical technicians' technique of dissecting the vaginal mucosa into front and back is not as proficient as those at central hospitals. The infusion of physiological saline into the submucosal layer of the vagina is also emphasized before proceeding with the dissection of the vaginal mucosa. This technique makes the organization of connections under the fascia become loose, making it easier and less bleeding to dissect widely.

In addition, as this is a newly applied technique, surgical experience is still limited, the dissection is mainly done by hand, going deep into both sides of the bladder and vaginal rectum, easily touching small blood vessels, thus causing more bleeding.

CONCLUSION

In this study, the effectiveness of the surgical method of placing a synthetic graft in the vaginal canal to treat female pelvic organ prolapse achieved a success rate of 95.7%. 98% of patients expressed satisfaction with this surgical method and were excited to confidently introduce this surgical method to other women.

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