

Complications of Synthetic Meshes in Pelvic Organ Prolapse Surgery – A Retrospective Study

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ABSTRACT

Purpose: To report and analyze complications of synthetic vaginal meshes used for pelvic organ prolapse surgery.

Methods: From the year 2006 to 2013, thirty-four women were referred for management of complications of vaginal mesh in a referral hospital. Data about the type and nature of complications were obtained from the referral letters and hospital database. Perineal ultrasound was used to evaluate the position of the mesh in relation to urinary tract, presence of any mesh inrolling or folding, and location of the mesh. In women presenting with urinary symptoms cystoscopy was performed to detect any mesh exposure in the urinary tract. These data were tabulated and analyzed.

Results: Of the 34 women, 27 had anterior mesh and seven had posterior mesh surgery for pelvic organ prolapse. Age of the women ranged from 32 years to 79 years. The most common presenting symptom after mesh insertion was development of new onset of urinary urgency and frequency (n=15). Other complications were vaginal exposure (n=10), constant pain in the vagina and pelvis (n=7), obstructive voiding (n=5), bladder exposure of mesh (n=5), new onset of dyspareunia (n=3), and vesico-vaginal fistula (n=2), rectal exposure (n=2) and rectovaginal fistula (n=1). Other complications were groin and buttock skin infections, development of prolapse in the opposite compartment, and partner penile injury (each one case). Of the 34 women, five (15%) required multiple surgical procedures to manage the complications. On perineal ultrasound we found that 12 women had mesh contracture (in rolled or folded mesh), and extension of the mesh under the bladder neck in 9 women.

Conclusions: Use of vaginal meshes can be associated with significant complications which affect quality of life. Multiple surgeries may be required in managing mesh complications. Complications can be seen even after many years of mesh insertion.

Key words: Pelvic organ prolapse, Vaginal mesh, mesh exposure, complications

INTRODUCTION

With the aim of reducing failures in pelvic organ prolapse (POP) surgery and to improve quality of life of women affected by POP, synthetic meshes were introduced which provide additional support to pelvic organs. The aim was fulfilled and the vaginal meshes provided excellent objective and subjective cure rates and reduced the recurrence rate of POP surgery [1]. However, insertion of synthetic material in the vaginal was not without problems. Even though the prolapse recurrence was reduced, these women developed complications which sometimes needed additional surgical procedure to manage the complications. In a systematic review on anterior mesh, Maher found that the anterior mesh group was associated with longer operating time, greater blood loss and apical or posterior compartment prolapse as compared with anterior colporrhaphy. Anterior polypropylene mesh had a mesh extrusion rate of 10.4 % with 6.3 % requiring a surgical correction [2]. Our study is a series of cases that needed clinical management for complications of vaginal mesh.

METHODS

From the year 2006 to 2013, thirty-four women were referred for management of complications of vaginal mesh in a referral hospital. Data about the type of vaginal mesh, surgical technique that these

women had undergone, time interval between the mesh surgery and the onset of complication, nature of complication were obtained from the referral letters and hospital database. All women underwent evaluation with detailed examination and investigation. In particular, perineal ultrasound was used to evaluate the position of the mesh in relation to urinary tract, presence of any mesh inrolling or folding, and location of the mesh. In women presenting with urinary symptoms cystoscopy was performed to detect any mesh exposure in the urinary tract. These data were tabulated and analyzed. As all the cases were referred from other hospitals, we do not have data on the denominator to estimate the incidence of vaginal mesh complications. Therefore we report only the different types of complications seen with vaginal mesh surgery and analyze them clinically.

RESULTS

Of the 34 women, 27 had anterior mesh and seven had posterior mesh surgery for pelvic organ prolapse. Age of the women ranged from 32 years to 79 years. Weight of the women in this series ranged from 53 to 120 kg and average weight of 77kg.

Different types of complications seen with vaginal meshes in presented in Table 1. The most common presenting symptom after mesh insertion was development of new onset of urinary urgency and frequency (n=15). Five women presented with obstructive voiding and at presentation they were undergoing intermittent self catheterization. All five of them had evidence of mesh contraction in perineal ultrasound and successfully underwent excision of the mesh to relive obstruction. Of the 15 women with urinary symptoms, nine had evidence of mesh extension to bladder neck on perineal ultrasound. The term obstructive voiding was used when a woman complained of difficulty in passing urine and a feeling of incomplete emptying of bladder, and ultrasound measurement showed residual urine of more than 100 mL. All women in this group also reported new onset of urgency and frequency and some complained of urgency incontinence after insertion of the mesh. Among women who complained of bladder symptoms we performed cystoscopy and found that five women had exposure of the mesh in the bladder.

Vaginal exposure of mesh was seen in 10 women and in nine of them the exposure was more than 1cm in size. These women presented with vaginal discharge, bleeding and one woman complained that her partner had injury to penis during intercourse.

Seven women complained of pain in the vagina and pelvis which was constant and continuous in nature. The pain worsened with physical activity like bicycling and during intercourse. New onset of dyspareunia was reported by three women.

Other rare complications were vesico-vaginal fistula (n=2), rectal exposure of mesh (n=2), rectovaginal fistula (n=1), groin and buttock skin infection, development of prolapse in the opposite compartment, and partner penile injury (each one case).

Table 1. Types of Vaginal Mesh Complications

Complications of Vaginal Mesh	Number	Percentage
New onset of Over active bladder	15	44
Vaginal exposure	10	29
Pain	7	20
Obstructive voiding	5	15
Bladder Penetration	5	15
Dyspareunia	3	9
Vesico-vaginal fistula	2	6
Foreign body sensation	2	6
Rectal exposure	2	6
Recto-vaginal fistula	1	3

Groin skin infection	1	3
Buttock wound infection with sinus formation	1	3
Development of prolapse in other compartments	1	3
Partner penile injury	1	3

Time interval between the insertion of mesh to seeking treatment for mesh complication ranged from 2 to 48 months (average 17 months) in case of anterior mesh and from 12 to 96 months (average 42 months) in case of posterior mesh. 24 of the total 34 complications (70%) were seen after one year of insertion of mesh (table 2).

Table 2. Time interval between mesh insertion and seeking of treatment for mesh complication

Time interval	Number	Percentage
Less than 48 hours	3	9
48 hours to two months	1	3
Two months to one year	9	26
More than one year	24	71

Perineal ultrasound was performed in all women and we found that 12 women had mesh contracture (in rolled or folded mesh), and extension of the mesh under the bladder neck in 9 women.

Of the 34 women, five (15%) required multiple surgical procedures to manage the complications. Four of these women required two reoperations for mesh complication and one woman required three reoperations at intervals of 1, 2 and 4th year.

DISCUSSION

This study is a retrospective review of complications of vaginal mesh, managed in a referral centre. In our study new onset of urinary urgency and frequency were the most frequent complications for which women were referred. Reported incidence of new onset overactive bladder following vaginal mesh surgery in different studies is 15 to 34% [3, 4]. In our series all patients who had de novo urgency had underwent anterior mesh repair. Five women presented with obstructive voiding requiring excision of mesh to relieve obstruction. Steinberg and colleagues studied post operative urinary retention after vaginal meshes in a series of 142 women. In their study 34% of the women developed early post operative retention but except for the two women (1.4%) in all others urinary retention was cured within three months of the operation [5]. The reported incidence of obstructive voiding after vaginal meshes varies from 0.6% to 2% [6, 7].

It is of interest to note that women with obstruction had evidence of mesh contraction on perineal ultrasound and of the 15 women with urinary symptoms nine had ultrasound evidence of mesh under the bladder neck. Reported risk factors for bladder obstruction are presence of higher degree of anterior compartment prolapse (before mesh insertion), use of anterior mesh and placement of mesh under the bladder neck or urethra [5].

Nine of the 10 women referred for vaginal mesh exposure had more than 1cm of exposure. The incidence of vaginal exposure following synthetic slings is about 10-12% [2, 8]. One women with vaginal exposure complained that her husband had injury to the penis during intercourse. Partner dyspareunia following mesh is a unique complication of vaginal mesh surgery and current literature about this topic is limited to case reports. Petri and Ashok reported a series of six cases of partner dyspareunia among which two had penile injury [9]. Various risk factors implicated in vaginal exposure are smoking, surgical inexperience, multiparity and somatic inflammatory diseases like rheumatoid arthritis [10, 11].

Persistent pain is one of the commonest symptoms after vaginal mesh repair and often the reason that brings patient to the clinician. Pain can be due to various reasons such as mesh exposure, contraction, infection, and nerve entrapment. In a study of more than 100 women with mesh complications by Hansen and co-workers, pain was the most common symptom (69%) with which women with mesh complications presented [12]. Following insertion of vaginal mesh, pain can occur at various sites like vagina, pelvis, buttocks, groin and in the thighs depending on the type of mesh, route of insertion and technique of mesh placement. The incidence of persistent pain following meshes is between 5 to 16% [12, 13].

New onset dyspareunia can occur after both native tissue repair and after mesh insertion for POP surgery. Following vaginal mesh, the reported incidence of dyspareunia is 8-28% [14]. Dyspareunia following non-mesh surgery is attributed to posterior colporrhaphy with levator plication [15]. During vaginal mesh procedures fascial plications and levatorplasty is usually not performed and this may be the reason for lower incidence of dyspareunia following vaginal mesh surgery [16].

Development of vesico-vaginal and recto-vaginal fistula is usually secondary to mesh penetration into the bladder and rectum respectively. Repair of isolated compartment prolapse by use of mesh can result in development of prolapse in initially unaffected vaginal compartment [17]. In our series, one woman who had anterior vaginal mesh for correction of cystocele developed posterior compartment prolapse (rectocele) two years following the mesh surgery.

In our study complications of anterior mesh occurred comparatively earlier than that of the posterior mesh. The mean time to presentation of complication after anterior mesh was 17 months where as for posterior mesh it was 42 months. It is to be noted that mesh complications can present as late as eight years after insertion of the mesh emphasizing the importance of long term follow up.

Requirement of multiple surgeries for management of mesh complications is of concern and the patients must be fully counselled about it before surgically managing a mesh complication. In a retrospective study of vaginal mesh, Wong et al. reported management vaginal exposure in 63 women. Resolution of vaginal exposure after the first treatment occurred in 24 of 63 (38%), whereas 39 of 63 (62%) required multiple treatments [18]. In this study [18] only 20% of women with mesh exposure underwent surgical management, the remaining undergoing conservative management. In a retrospective follow up of 101 women having mesh complications Unger and colleagues found that 8 % underwent a second surgery; and 34% required a second nonsurgical intervention. They also reported that 3 of the 52 women needed three or more surgeries for management of mesh complications [19]. In a recent study Abbott et al reported that 26% of women with vaginal mesh complications undergo more than one surgical procedure to manage the complication [20].

CONCLUSIONS

Use of vaginal meshes can be associated with significant complications which affect quality of life. Multiple surgeries may be required in managing mesh complications. Complications can be seen even after many years of mesh insertion. Patients should be appropriately informed about the possible mesh complication before undergoing vaginal mesh surgery for pelvic organ prolapsed.

CONFLICTS OF INTEREST: None

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AUTHOR CONTRIBUTION

- 1) Prof. Eckhard Petri: Data Collection, Surgical Management
- 2) Dr Kiran Ashok: Data Analysis, Manuscript Writing

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