

Lumbosacral discitis following laparoscopic sacrohysteropexy

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Background

Pelvic organ prolapse is defined as descending of pelvic organs through vagina¹. This is a common gynaecological problem among parous and elderly women and it severely affects their quality of life^{1,2}. Prolapse of uterus at young age is a very significant gynaecological condition which affects quality of life and fertility. Sacrohysteropexy is the standard procedure to place the uterus back to its original position and it helps to improve symptoms and quality of life³.

Laparoscopic sacrohysteropexy is the fixation of cervix of the uterus to the sacrum by a mesh with stitches or tackers. It offers great advantage, such as minimal blood loss, minimal bowel manipulation, shorter recovery time and less post-operative pain⁴.

Lumbosacral discitis is a rare, mesh related, serious complication following laparoscopic sacrohysteropexy^{3,5,6}. It is a result of infection at lumbosacral spine which requires use of long term intravenous antibiotics, mesh excision, mesh debridement

or even resection of infected bone⁶. Infection of the spine can be due to direct inoculation, hematogenous spread, as an ascending infection via prolene mesh or a combination³. Despite long term strong antibiotics, it may not be sufficient enough to prevent disc collapse, nerve root compression and permanent neurological disability³. Appropriate and timely neurological intervention with gynaecological care is utmost important for prevention of long term permanent complications of lumbosacral discitis³.

Case presentation

A 32 year old mother of one child presented with mild back pain and lump at vulva for two years duration. Patient has experienced difficulty in having sexual intercourse which affects her sexual wellbeing compromising quality of life. She did not complain any involuntary leak of urine or urgency. She was otherwise healthy.

Patient was further evaluated with vaginal examination and found to have utero vaginal prolapse and was graded

Sri Lanka Journal of Obstetrics and Gynaecology 2020; **42**: 115-119

DOI: <http://doi.org/10.4038/sljog.v42i3.7940>

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Received 16th August 2020

Accepted 1st September 2020



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as Aa -1, Ba -2, C 0, GH 4 cm, PB 4 cm, TVL 8 cm, Ap -1, Bp -2, D -5 according to Pelvic Organ Prolapse Quantification (POP-Q) system⁷. Her bimanual clinical examination and transvaginal scan confirmed that her uterus, both ovaries and rest of the pelvic cavity is anatomically normal. As conservative treatment with a ring pessary insertion has already failed for her, considering future fertility wishes and to normalize the affected sexual life, it was decided to proceed with laparoscopic sacrohysteropexy under general anaesthesia. Informed written consent was taken after explaining the advantages and disadvantages of the surgical procedure.

She underwent laparoscopic sacrohysteropexy without any intra-operative complications such as visceral damage, blood transfusion etc. The uterus was attached to a 1.4 cm wide 11 cm long Y shaped strip of prolene (Ethicon) mesh (trimmed to appropriate size) by prolene no 1 stitches at the posterior cervix just above the attachment of uterosacral ligaments and that strip was further fixed along the posterior wall of the uterus about three centimeters towards the fundus (Figure 1,2). The uterus was lifted up to its normal anatomical position without tension and the other end of the strip was fixed to the sacral promontory using protack covidien 5mm helical fasteners (Figure 3). The strip of prolene mesh was covered with peritoneum using 2-0 polyglactin sutures (Figure 4). Patient recovered uneventfully and her post-operative evaluation confirmed improvement of prolapse as Aa -2, Ba -3, C-6, GH 4 cm, PB 4 cm, TVL 8 cm, Ap -2, Bp -3, D-8 as per POP Q system. Patient was discharged from the hospital on the second day following the surgery.



Figure 1.



Figure 2.



Figure 3.



Figure 4.

Following laparoscopic sacrohysteropexy, patient was satisfied with disappeared uterine prolapse and back pain. She started to get fever (> 38 Celsius) and low back pain (LBP) on 9th day after the surgery and initially she was managed with paracetamol and local diclofenac sodium gel application. Her symptoms were worsening and further complicated with left sided buttocks pain, radiating type lower limb pain and it increased in severity with time. She complained severe

pain when bending down and on examination the reflexes were normal and no sensory loss noted. Her left lower limb movements were limited due to LBP and walking was limited to few steps. she was further evaluated with investigations.

Investigations

The patient was evaluated with basic investigations such as full blood count (FBC), C-reactive protein (CRP) and erythrocyte sedimentation rate (ESR). According to basic investigations, she had high counts of WBC ($13.1 \times 10^3/\mu\text{L}$) with neutrophil predominance [81%], high level of ESR (122 1st hr) and high CRP (30 mg/L). Blood culture was negative. Patient was further evaluated with magnetic resonance image (MRI) scan and reported to have L5/S1 spondylodiscitis with contrast enhancement and minimal intraspinal extension and no canal stenosis or cauda equina compression [Figure 5].



Figure 5.

Rare possibility of tuberculosis of lumbar spine was excluded by confirming negative results of cerebrospinal fluid (CSF) full report, culture and gram stain by lumbar puncture. CSF also is negative for alcohol and acid-fast bacilli, tuberculosis polymerase chain reaction (TB-PCR). Her mantoux and chest x-ray were negative.

Differential diagnosis

Patient's presentation with fever and LBP which is radiating to the buttocks and left lower limb with increased inflammatory markers and contrast enhancement of L5/S1 disc were suggestive of spondylodiscitis. The fact that the patient had a laparoscopic surgery 9 days prior, lead to the suspicion of possible infective complication of the surgery. It could be possible commonly due to direct inoculation or from haematogenous spread of an infective organism. Although the very high ESR raised the possibility of tuberculous spondylodiscitis, it was excluded.

Treatment

The patient was managed by a team of specialists including Gynaecologist, Neurologist, Radiologist and Microbiologist. Once the blood cultures were sent broad spectrum antibiotics were commenced. Intravenous antibiotics; teicoplanin 400 mg 12 hourly for 3 doses and continued with 400 mg daily for 21 days, intravenous ceftriaxone 2 g 12 hourly for 21 days and IV metronidazole 500 mg 8 hourly for 21 days were administered. Oral paracetamol with codeine was given as analgesics. As there was ongoing fever, LBP and persistent inflammatory markers irrespective of antibiotics, laparotomy was performed after 7 days of antibiotics to remove culprit infective focus which is the mesh and fasteners. Removal of prolene mesh was not possible as it has completely fibrosed and also tracing the clip was not possible. Hence the surgery was limited to total abdominal hysterectomy with bilateral salpingectomy under general anesthesia. Bilateral ovaries were preserved.

Oral diclofenac sodium [50 mg 12 hourly] and subcutaneous morphine [as requested by patient] were added as strong analgesics. Postoperative recovery of the patient was uneventful except intermittent fever upto postoperative day 4. Back pain reduced from day 9 of intravenous antibiotics and patient clinically improved eventually.

Postoperative haemoglobin level of the patient was 9.4 and blood transfusion was not done. ESR and CRP values of the patient gradually came down. Same antibiotics were continued upto a total of 21 days. Apart from that, physiotherapy was started from post operative day 2 onwards. By postoperative day 17, patient was clinically well with no complaints of back pain and was walking normally.

Outcome and follow up

Patient was followed-up monthly for six months for Gynaecological and Neurological complications. Histology of uterus and both tubes were unremarkable and the patient was clinically well. There were no long term neurological deficits and showed no long term disabilities.

Discussion

Lumbosacral spondylodiscitis and osteomyelitis are known and reported serious complications following open or laparoscopic sacrocolpopexy^{3,5,8,9,10}. The first case of lumbosacral discitis following laparoscopic sacrohysteropexy reported in 2019 in China (11) and few reported cases before were in hysterectomized patents. This report presents most probably the second case of lumbosacral discitis following sacrohysteropexy.

There is limited experience among Gynaecologists of this complication as it is a rare and less reported. Nevertheless, its clinical value remains high as it is a severe morbid condition and only timely action would prevent permanent disability or severe morbidity.

There are no specific guidelines to manage this condition and only case reports have discussed various management options. Treatment with antibiotics is one of the mainstays of treatment method and the duration has ranged from six weeks to twelve weeks^{3,6,9,10}. In our case we used antibiotics only for three weeks to achieve the full recovery.

Other than the use of antibiotics, surgical strategies have been combined in the management of these complications such as removal of mesh, screws and staples^{3,6,10}, removal of dead bone and bone grafting¹⁰, and even hemilaminectomy and nerve root decompression⁸. Most of these cases end up with full recovery of the patient without any disability, but few cases have reported persistent neurological disabilities⁶. In this patient though mesh and tacks removal were attempted it was not possible due to fibrosis and probably it protected her from recurrence of prolapse.

Qu et al has analyzed 33 cases of lumbosacral discitis and found that the median age of patients was 60 and ranged from 42-60. Our index patient is just 32 years old and this is the youngest patient who had this

complication in the literature. All the patients with lumbosacral discitis have presented with LBP post-surgery and it is utmost important to pay attention to early clinical signs not to miss this grave complication. Low back pain needs recognition as an early warning symptom in post-operative patients suspected of Lumbosacral discitis.

The exact cause for the infection is not clear and direct inoculation during the suturing and fixation device application over the spine could be a possibility. Therefore avoidance of infection by strict aseptic techniques during the surgery would be the best strategy for prevention and good practice points for the future.

Though laparoscopic hysteropexy is the gold standard procedure in correcting the uterine prolapse while preserving the uterus, it is not without risk of this grave complication. In conclusion, lower back pain needs recognition as an early warning symptom for spondylodiscitis following sacro-hysteropexy. Infections though rare can cause grave consequences including lifetime disability. Timely diagnosis and appropriate treatment can minimize the consequences of spondylodiscitis.

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