

# Postpartum Vaginal Stenosis Due to Chemical Vaginitis

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## ABSTRACT

Acquired vaginal stenosis is a rare obstructing anomaly, which can be caused by use of chemicals in the vagina. A 21-year-old gravida 1 para 1, presented with secondary amenorrhea and inability to have sexual intercourse, after normal spontaneous vaginal delivery complicated by post partum bleeding. The delivery was conducted by untrained traditional birth attendant at home. The wash cloth soaked with caustic soda was packed in the patient's vagina and was left in situ for 10 days, which ultimately led to the severe scarring and stenosis of the vagina. Patient underwent surgical management and the extensive vaginal adhesions were excised and a patent vagina was reconstructed. Patient then reported successful vaginal intercourse without dyspareunia. Post partum vaginal stenosis due to chemical vaginitis is rare. These cases can be prevented by adequate training of untrained health care workers.

**Keywords:** Chemical burn, Caustic soda, Sodium hydroxide, Vaginal atresia, Vaginal gynatresia

## CASE REPORT

A 21-year-old gravida 1 para 1 was referred to our hospital from the outside facility. The patient had full term normal vaginal delivery one year ago. She had uncomplicated prenatal course with limited prenatal care by untrained traditional birth attendant (*local dai*). The delivery was conducted by *local dai* at home. The delivery was uneventful, however patient reports significant bleeding per vaginum in immediate postpartum period. The bleeding was controlled by insertion of cloth pack soaked in caustic soda into the patient's vagina. The cloth pack was removed after 10 days following which no bleeding was reported. Patient did report significant pain, burning and discomfort for initial few days which gradually subsided.

She denies any significant past medical or surgical history. She attained menarche at the age of 12 years and had normal menstrual cycles since then. She did report amenorrhea after childbirth, but she was told that it is common to have amenorrhea while breast feeding by a local practitioner. She then complained of difficulty in sexual intercourse with severe pain during penile insertion. She was unable to tolerate coital activity. She consulted a local practitioner with these complains and she was then referred to our center for further evaluation and management.

On local examination, the mons pubis and urethral orifice were normal. The labial skin around the fourchette and lower part of vulva was seen scarred and pushed high up inside the vagina for about an inch. On speculum examination, vagina was blind approximately 2 cm in length and cervix wasn't visualized. On per vaginal examination, two fingers could be inserted for about 2 cm in the vaginal canal and cervix wasn't felt. Nearly the whole length of vagina was obliterated with dense adhesions [Table/Fig-1]. Per rectal examination revealed normal anal sphincter tone.

On ultrasound, the uterus, ovaries and fallopian tubes were normal. No significant fluid collection was noted in the vagina. Patient was counselled for operative reconstruction of vagina. Preoperative laboratory work up, including complete blood count, comprehensive metabolic panel and coagulation studies were performed and all were within normal limits.

Decision was made to perform resection of adhesions and vaginal reconstruction. The dense band of adhesions was grasped with Allis clamp and a transverse incision was made. Meticulous dissection was performed and the adhesions were resected



**[Table/Fig-1]:** Presence of dense adhesions in the vagina and normal urethra (catheterized). **[Table/Fig-2]:** At completion of surgery, adequate vaginal length was achieved and a mould was placed.

throughout the vagina circumferentially and vagina was also separated from the cervix. The cervix was then mobilized and cleared of all adhesions by blunt and sharp dissection. Some bleeding was noted in the vagina and cervix which was cauterized. Cervix was then dilated sequentially with Hegar's Dilator and some altered blood was seen at the external os. The vaginal mucosa was then reapproximated throughout its circumference using simple end-to-end anastomosis. The labial skin pulled up inside the vagina near posterior fourchette was additionally released and the cicatrized tissue was removed. The vaginal mucosa and skin were approximated. A vaginal mould covered with a water-insoluble, haemostatic device Spongistone (Gelfoam) - a sterile Compressed Gelatine Sponge made of purified porcine skin gelatine, was then placed in the vagina [Table/Fig-2].

Her postoperative course was uneventful and patient was discharged home. Vaginal mould was changed on postoperative day 4 and on examination there was no pressure necrosis or ulcerations. She was instructed to manually dilate the vagina everyday with self insertion of the mould. Patient was then followed up for next six months after surgery. The vagina healed well and adequate vaginal length was achieved. She gradually resumed normal sexual activity without significant dyspareunia [Table/Fig-3].

## DISCUSSION

Acquired vaginal stenosis is largely under reported condition which is rarely encountered post partum. Most cases reported are due to chemical vaginitis, female genital mutilation and birth trauma [1]. The caustic substances are inserted into the vagina



**[Table/Fig-3]:** Patient in follow-up showing normal vaginal space and mobilized cervix.

for destruction of the lubricating vaginal glands so that the sex is painful for female and more pleasurable for male in some African cultures as part of “dry sex”. The use of herbal caustic vaginal pessaries for treatment of uterovaginal prolapse and fibroids has additionally been documented [2]. From developed nations, most causes of vaginal stenosis are reported from complications from pelvic radiotherapy or as a spectrum of pelvic vaginal surgeries like colpocleisis [3].

Chemical vaginitis resulting from the use of herbal pessaries is the most common cause of acquired gynaesria in Nigeria [4]. These herbal pessaries are made of mixture of herbs, potassium permanganate and lime [2]. They are used for vaginal tightening (to enhance sexual pleasure) and for treatment of fibroids associated with infertility. Another cross cultural study [5], reported that herbal pessaries like madura rod and jamu are used for vaginal tightening (to achieve a virginal state) and for curatives practices (maintenance of clean and healthy vagina) in some Asian and African countries. Harmful substances like limestone (calcium carbonate), choral rocks (for astringent property) and potassium permanganate (as illegal abortifacient) are also inserted into the vagina. Even subdermal vaginal inserts made from gold, metal, or precious stones are used for vaginal tightening and enhanced sexual pleasure [5].

The complications associated with chemical vaginitis can be acute or chronic. Acutely, they cause severe burning, pain, or formation of fistula. Chronically, extensive scarring and stenosis of vagina develops, which can further cause amenorrhoea, dysmenorrhoea, dyspareunia, haematometra and gynaesria [2].

Insertion of caustic soda into the vagina has not been reported. Based on a systematic literature search using MEDLINE (Ovid and PubMed) databases from 1950 to August 2015 using keywords “vaginal stenosis, vaginal atresia, vaginal injuries, vaginal burns” and “sodium hydroxide, caustic soda” with no limits placed, no similar case reports were identified demonstrating chemical burns to the vagina caused by sodium hydroxide.

Sodium hydroxide (caustic soda) is a strong alkaline agent which is solid, easily soluble in water and non-combustible [6]. It is frequently found in domestic Indian household and is used as cleaning agent. The burns caused by alkali penetrate deeper in the skin as compared to acid or thermal burns and cause acute and chronic sequelae. Sodium hydroxide dissolves protein and lipid in tissue by amide and ester hydrolysis. It is frequently known to cause chemical burns, if not handled carefully.

The post partum vaginal bleeding reported by our patient was likely either due to uterine atony or due to vaginal or perineal tears. The gauze soaked in caustic soda, was inserted in the patient's vagina. It must have caused the heavy vaginal bleeding to stop due to tamponade effect, however it did cause severe burning of the patient's vagina, which leads to superficial burns to patient's vaginal wall followed by scarring and adhesion formation between

the raw anterior and posterior vaginal wall. Therefore, the vaginal length was shortened leading to difficulty with penile insertion and dyspareunia. The amenorrhoea was likely due to lactation.

The treatment of the dense adhesions resulting from chemical vaginitis is mainly surgical. The treatment with just the use of vaginal dilators is inadequate as scarred and devascularized vagina loose elasticity and will unlikely respond to the use of dilators. Surgical intervention varies from simple excision and removal of fibrous tissue and adhesions to complete vaginal reconstructive surgeries, depending upon the extent of tissue damage. Methods commonly used for vaginal reconstruction includes Mc Indoe's Vaginoplasty, where space is created in connective tissue between bladder and rectum with use of a split thickness skin graft obtained from the patient's buttock or anterior thigh [7]. Other procedures using myocutaneous, intestinal segments, peritoneum and even amnion grafts to create the neovagina have been reported [7]. In postoperative period, the use of vaginal moulds and vaginal dilators helps in decreasing the scarring and stenosis of the surgical site and improves the vaginal caliber. Postoperative vaginal dilation is critical to the success of the vaginal reconstructive surgery [8].

Home deliveries by untrained birth attendants should be discouraged as most of the local dais are not trained enough to conduct vaginal deliveries safely at home. They are not trained to perform episiotomy, if needed during the delivery and cannot repair any perineal tears. The referral system is also inadequate and poor, if complications occur during normal vaginal delivery. This leads to the situation where these untrained health workers mismanage the normal vaginal delivery, causing more harm to the patient as described in present case. There is an extreme need to train these birth attendants so that they can safely conduct the vaginal deliveries.

## CONCLUSION

Post partum vaginal stenosis due to chemical vaginitis is rare. With this report, we aim to familiarize the health care professionals with the causes and complications associated with these traditional harmful practices. These cases of acquired gynaesria can be prevented by adequate training of untrained health care workers and by discouraging the people to seek medically unapproved treatment from herbalist and medically unqualified personnel.

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