

Obstetric fistulae: a review

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ABSTRACT

Obstetric fistula is one of the most feared complications of labour, leaving a woman with a life of ostracism and shame due to her complete incontinence. Many women see this as a curse for something they did and many end up trying to take their life. Obstetric fistula patients present with a complicated array of physical and psychological needs which should all be addressed by the medical team caring for her. In the majority of cases, obstetric fistula is curable as long as the doctor is trained in and skilled in the right surgical techniques. However, the most important message is that obstetric fistula is preventable. Ensuring that all women receive proper, affordable and timely medical care in labour will ensure that women will not need to fear such dreadful sequelae of trying to have a baby.

Key words: Obstetric fistula, vesicovaginal, rectovaginal, South Sudan, symptoms, treatment.

INTRODUCTION

Obstetric fistulae have been occurring ever since women first started to deliver babies. However, it was not until recently, only around 350 years ago, that the first recorded case of an obstetric fistula was cured in Europe. James Marion Sims, the father of modern gynaecology developed flap splitting surgical techniques for fistula repair and is credited as the first surgeon to more reliably cure fistula patients. His work dates back to the 19th century and took place largely in New York where obstetric fistula were common at the time.

PREVALENCE AND EPIDEMIOLOGY

Obstetric fistulae have been almost eradicated where women have access to safe and affordable emergency obstetric care including Caesarean Section. However, wherever women do not have ready access obstetric fistulae occur.

No one knows how many fistula patients are still waiting for treatment or how many are added to that number each year. One large hospital-based study estimated 0.35% of deliveries in areas without access to safe and affordable obstetric care.^[1] Extrapolating from this, there may be two million women living with obstetric fistulae and 50-100,000 new cases each year.^[2] A meta-analysis from 2013 showed that these estimates are probably exaggerated and suggested that the prevalence is 0.29 per 1000 women of reproductive age meaning that there are probably around one million women living with this condition.^[3]

There is geographical variation. In countries with a more accessible health services there will be lower maternal deaths and lower incidence of obstetric fistulae. In countries like South Sudan, with a high maternal mortality rate, obstetric fistula sufferers will be numerous and the Ministry of Health of South Sudan has estimated that there are some 60,000 women suffering from obstetric fistulae in South Sudan alone.

It is clear from numerous studies that obstetric fistulae occur simply because of a long, unrelieved obstructed labour.^[4,5,6,7,8,9,10,11] Labour should last well below one day The active phase of labour in a primiparous woman averages 12 hours

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and for a multiparous, eight hours. However, women who develop an obstetric fistula have been in labour on average for 3.9 days.^[5] During the long labour, the presenting part is impacted against the bony pelvis of the mother, crushing the intervening tissues of the urinary and genital tracts, and in around 5-10% of cases the tissues of the rectum and anus and vagina as well. The necrosed tissues ultimately slough away and the fistula can occur between the ureter, bladder and / or urethra and uterus, cervix and or vagina and in 5-10% of cases, between the rectum and / or anus and vagina as well. Total incontinence, shame, divorce, isolation and suicide are commonplace.

What is more controversial is the claim that obstetric fistula is associated with early marriage and early pregnancy and this is often quoted as a proven fact. It is true that about 50% of women who develop fistulae do so in their first delivery, but equally, around 50% of women get their fistula on their subsequent delivery. This claim makes common sense as the female pelvis does not fully mature until some two years after the menarche, meaning a pregnancy in this young age could lead to obstruction and hence fistula. However, a study from Tanzania found that there was no association with an early pregnancy and fistula and although not statistically significant, there was less obstructed labour and fistula formation in those women getting pregnant very young.^[12]

It is often argued that there are over 500,000 teenage pregnancies in the USA each year and no obstetric fistula due to obstructed labour because all women have access to a Caesarean Section if needed. Fistulae occur in areas of poor access to Caesarean Sections. These populations are poorly resourced, educated and get married and pregnant early. The fact that getting pregnant young is the norm and is related to poverty does not prove that an early pregnancy is the cause of a fistula. Fistula will only be eradicated when all women can deliver safely with appropriate obstetric care.

A more worrying trend is the rise of the iatrogenic fistula around Africa and South East Asia. It is estimated that around 25% of all women suffering obstetric fistulae in Eastern Africa have done the right thing and come to hospital to deliver their babies, but received a fistula at the hand of the doctor during a Caesarean Section. The definition of this outcome is a Caesarean Section carried out after less than a day of labour and delivering a live child; that is, her labour has not yet damaged the tissues.

Hence the only possible cause of the fistula is faulty surgical technique.^[13,14] It has become common practice not to properly mobilise the bladder and ureters during a Caesarean Section making it very easy to incorporate the bladder into the repair of the uterus leading to fistula formation. Ureteric fistulae are almost always iatrogenic, the ureters being sutured into the lower segment especially if the angle of the uterine incision has torn laterally.

The only way to prevent obstetric fistulae is for all women to gain access to an operative delivery to relieve the obstructed labour if it is needed. However, there are many barriers to this: lack of awareness to get help in labour, needing permission from the mother-in-law or husband to go to hospital, lack of transport or funds to get to the hospital, a reluctance for fear of abuse physically or verbally at hospital. There is also a common belief (often correct) that they will receive poor quality care as the local health facilities are under-resourced and staff unmotivated for the lack of pay for months. The fear of having to pay or inability to pay hospital fees also keeps patients at home.^[15,16,17,18]

SYMPTOMS

It is wrong to think that a woman who has an obstetric fistula just has a hole in her bladder making her incontinent. The ischaemic process that causes the fistula affects all the tissues in her pelvis, the muscles, nerves, bones as well as reproductive, urinary and alimentary tracts. It is a 'field injury' affecting a wide variety of structures and the term 'the obstructed labour injury complex' is used to describe it.^[19]

Thus, the symptoms include:

1. **Urinary incontinence** caused by a fistula anywhere from the ureter to urethra and communicating with the cervix and/ or vagina. The fistula can be small, less than one centimetre in diameter, or large, having destroyed the whole anterior vagina and almost all of the bladder and urethra. Despite the size, the incontinence is complete, leaking urine every minute of every day.
2. **Faecal incontinence** can involve the rectum and or anus and posterior vaginal wall.
3. **Bone damage.** 32% will have some bony abnormality in the pelvis, more commonly separation or obliteration of the symphysis pubis.
4. **Hydroureters and hydronephrosis.** Scar forms in the pelvis after the necrotic tissue comes away causing obstructive uropathies in 49% of patients.
5. **Levator muscle damage.** Some women have their whole levator plate sloughed away.
6. **Nerves.** Some 20% will have damage to the lumbosacral plexus or the common peroneal nerve as it traverses the head of the fibula causing some degree of foot drop.

Then because of their incontinence they suffer later, secondary conditions occur.

1. **Urine dermatitis** from the urine irritating the skin.
2. **Lower limb contractures** from long periods of

immobility, usually associated with foot drop.

- 3. Malnutrition and anaemia**, especially if they have been divorced and ostracised with no one to care for them.
- 4. Mental health issues.** Up to 100% of women will screen positive for some form of mental illness most notably depression. Up to 40% have thought about or attempted suicide.

TREATMENT

The mainstay of treatment is surgery, although some fistula can be cured by prolonged catheterisation soon after delivery. If the fistula is small, less than two centimetres, and doesn't involve the pelvic side walls, then inserting a catheter to drain the urine away from the fistula can result in spontaneous closure of the defect, as long as the catheter is inserted within one to two weeks of the delivery. However, it is essential to make sure the catheter has not been passed through the fistula and into the vagina. This of course will keep the fistula open.

Most surgeons wait until three months has passed since the obstructed labour that caused the fistula. This gives the tissues time to recover from the ischaemic insult. Some senior fistula surgeons will operate earlier than this, but the tissues are much more difficult to handle and the sutures often tear out. It is best to wait until the tissues have healed.

The most important thing about fistula surgery is to only operate if you have had specific training in the relevant surgical techniques. Unfortunately, there are many surgeons who try fistula surgery and are sometimes paid to try, but they don't know the steps and they usually leave a high number of failed fistula operations. This is devastating for the patient who might give up hope that they can ever be cured. A subsequent operation will be much more difficult as the first operation has just resulted in more tissue damage.

From my personal series of fistula operations, about 60% of the cases I see in South Sudan have been operated on before, sometimes five or six times with no benefit. This makes a successful cure from the next operation unlikely. Every surgeon will have failures, but any skilled surgeon, with appropriate training, should be able to successfully close 90% of all fistulae at the first operation.

To achieve this these five basic principles should be followed:

- 1. Good exposure**, with good specula, retractors and assistants.
- 2. Protect the ureters.** It is easy to cut or ligate a ureter during a fistula operation. You must identify and catheterise the ureters in all fistula defects that lie close to the uretero-vesical junction.

- 3. Mobilise the urinary tract away from the genital tract.** This must be done slowly and meticulously without tearing at the tissues. The tissues are often thin and fragile. Tearing and rough operating just makes the damage even worse.
- 4. Tension free closure.** Mobilise the tissues adequately to get a tension free closure of the urinary tract. Any tension on the tissues will cause the healing union of the tissues to fail.
- 5. Check you have it closed by doing a dye test.** Always perform a dye test by inserting at least 60ml of dilute dye into the bladder to ensure you have a water tight closure. If there is any leak, the operation will fail.

By adhering to these basic principles at least 90% of obstetric fistulae will be closed at the first operation. However, this doesn't mean that the patient will be continent. Up to 33-45% of all fistula patients will have some degree of ongoing urinary incontinence despite a closed fistula. This is because the structures and muscles that keep a woman continent have been affected by the ischaemic process. More recently there has been three more principles added to the above five that will not only increase the successful closure of the fistula but reduce the rate of ongoing incontinence. These principles aim at restoring normal anatomy.

- 1. Restore the normal length and width of the urethra.** Around one third of women will have their urethras affected by the fistula injury and unless the urethra is reconstructed to a normal length and width out of bladder tissue, then the chance of ongoing incontinence is unacceptably high.
- 2. Support the urethra** with a sling to reconstruct the pubourethral ligament. This can be made from levator complex or rectus sheath.
- 3. Repair the vagina with no tension.** Remember there is also tissue loss to the vagina and pulling it together pulls tension on the urethra just pulling it open and making the patient incontinent. If there is loss of the vaginal tissue you need to use specialised flaps to restore normal vaginal anatomy.

Training in these steps and following them should not only get more than 90% of fistulae closed, but the ongoing incontinence rate after repair should lower and approach 15%.

CONCLUSION

Obstetric fistula is a devastating condition to those who suffer from it. It is treatable but the surgeons should only attempt a repair after having received adequate training without which they run the risk of doing more harm than good.

More importantly, obstetric fistulae are entirely preventable. We shouldn't see women suffering from a long unrelieved obstructed labour which runs the risk of them dying and if they survive, of getting a fistula. This requires an enormous investment into health care which will take time and commitment, but it is achievable.

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