

Obstetric vesicovaginal fistula as an international public-health problem

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Vesicovaginal fistula is a devastating injury in which an abnormal opening forms between a woman's bladder and vagina, resulting in urinary incontinence. This condition is rare in developed countries, but in developing countries it is a common complication of childbirth resulting from prolonged obstructed labour. Estimates suggest that at least 3 million women in poor countries have unrepaired vesicovaginal fistulas, and that 30 000–130 000 new cases develop each year in Africa alone. The general public and the world medical community remain largely unaware of this problem. In this article I review the pathophysiology of vesicovaginal fistula in obstructed labour and describe the effect of this condition on the lives of women in developing countries. Policy recommendations to combat this problem include enhancing public awareness, raising the priority of women's reproductive health for developing countries and aid agencies, expanding access to emergency obstetric services, and creation of fistula repair centres.

Vesicovaginal fistula is an abnormal opening between the bladder and the vagina that results in continuous and unremitting urinary incontinence (figure 1). In industrialised countries, such fistulas are rare, and arise mainly from malignant disease, radiation therapy, or surgical injury (usually to the bladder during hysterectomy).^{1,2} In the poor countries of Africa and south Asia, however, vesicovaginal fistulas are a common problem, afflicting many women. In these countries, fistulas are usually caused by prolonged obstructed labour, which was also once the most common cause of fistulas in Europe and the USA. Fistula from obstructed labour was eradicated from industrialised nations by the middle of the 20th century as effective systems of obstetric care were developed to cover the entire population of childbearing women. As a result of this success, contemporary published work on obstetric fistulas is woefully inadequate by the standards of 21st century evidence-based medicine, a situation that is not uncommon for medical problems that are largely confined to poor countries. A

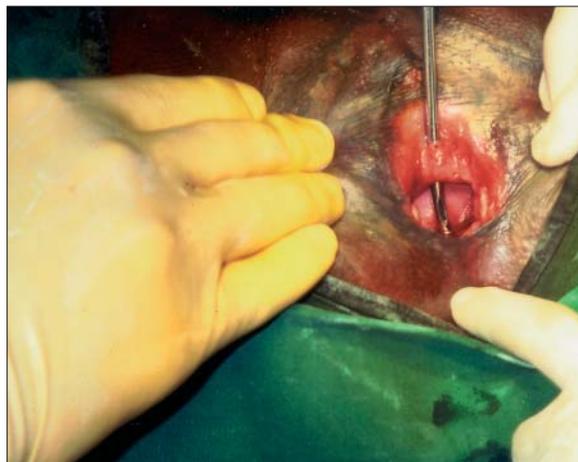


Figure 1: Moderate-sized vesicovaginal fistula from obstructed labour. A metal catheter passed through the urethra is clearly visible through the bladder base, which is missing. Copyright Worldwide Fistula Fund, used by permission.

comprehensive review in 2005 of existing medical and surgical reports on obstetric fistulas concluded that “the Western medical literature on obstetric fistulas is old and relatively uncritical by current scientific criteria. This literature consists mainly of anecdotes, case series (some quite large), and personal experiences reported by dedicated surgeons who have labored in remote corners of the world while facing enormous clinical challenges with scanty or absent resources at their disposal.”³ The precise extent of the fistula problem in developing countries is, therefore, unknown, but review of the available evidence suggests that this problem is both enormous and neglected.

Epidemiology

In 1993, a generally accepted estimate (admittedly not well grounded in hard data) suggested that at least 2 million women in the developing world had unrepaired obstetric fistulas, and even this number was regarded by many observers as too low at that time.⁴ A recent conservative attempt to estimate the incidence of obstetric fistulas with a population-based survey of severe obstetric morbidity in West Africa concluded that there were probably at least 33 000 new cases each year in sub-Saharan Africa.⁵ At the other end of the spectrum, the most recent estimate from the WHO

Search strategy and selection criteria

A MEDLINE search was done from 1966 onwards with the keywords “fistula,” “vesicovaginal fistula,” and “obstructed labor,” along with intensive bibliographic checking of older published books and journals. The material was reviewed by a select committee of fistula experts currently working in developing countries, who supplemented published sources with their own personal experience, as part of the Third International Consultation on Incontinence in Monaco in 2004, and updated since. The full report of the committee has been published.³

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Global Burden of Disease Study suggested that obstructed labour affects at least 7 million women every year, 6.5 million of whom live in the least-developed regions of the world where access to competent obstetric care is poorest and the likelihood of serious complications is greatest.⁶ If only 2% of obstructed labours in the developing world result in a subsequent fistula, 130 000 new cases would be added each year, and because women may live for decades with this condition, the burden of suffering borne by these women measured in quality-adjusted life years is enormous. Because the capacity to repair obstetric fistulas lags far behind the incidence in these countries, as many as 3.5 million women might be suffering from this condition. Results of a qualitative survey of the extent of the fistula problem in nine African countries by EngenderHealth on behalf of the UN Population Fund confirmed that this condition is widespread.⁷

Although much talk and many conferences have been devoted to safe motherhood over the past 20 years, the *British Journal of Obstetrics and Gynaecology* recently referred to the maternal health crisis in the world's poorest nations as "the scandal of the century".⁸ A 100-fold disparity exists between maternal mortality ratios in affluent industrialised countries and those in poorer countries; 99% of the world's 529 000 annual maternal deaths occur in the developing world; and if a woman's lifetime risk of dying as the result of a complication of pregnancy or childbirth is considered, the disparity is even greater.⁹ For example, a woman's lifetime risk of dying as the result of a pregnancy-related cause is estimated to be one in 29 800 in Sweden, but as high as one in six in the most impoverished, least developed regions of Africa and Asia (such as Sierra Leone and Afghanistan).⁹ The international aid community has been largely uninterested in funding programmes that provide emergency obstetric services for the poor women of the world. As a result, many have come to regard "safe motherhood" as an "orphan initiative".^{10,11}

Tragic as any maternal death is, the loss of life that occurs from avoidable obstetric causes is dwarfed by the number of women in developing countries who sustain crippling, non-fatal obstetric injuries. The precise prevalence of serious maternal morbidity in developing countries remains unknown, but evidence suggests that it is alarmingly high. For example, Fortney and Smith¹² calculated the ratio of serious maternal morbidity to maternal mortality for Indonesia, Bangladesh, India, and Egypt and estimated that 149, 259, 300, and 591 serious maternal injuries occurred in these countries, respectively, for every maternal death. The most dramatic maternal birth injury is vesicovaginal fistula. Although substantial numbers of fistulas are caused by trauma, by sexual abuse or coital injury in child brides, by infection (particularly with lympho-

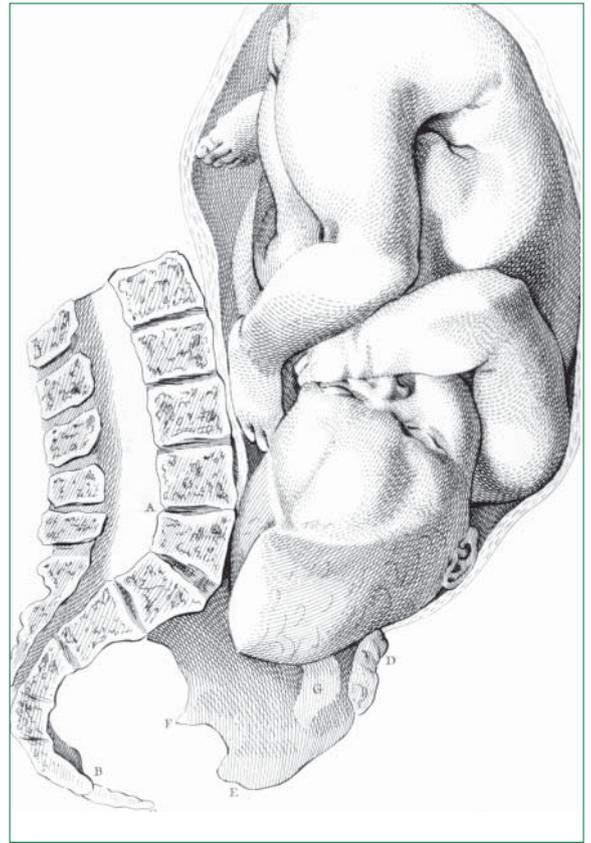


Figure 2: 18th-century obstetrical drawing of obstructed labour from absolute cephalopelvic disproportion. From William Smellie's *Sett of Anatomical Tables*, 1752. Note overlapping parietal bones.

granuloma venereum), and by harmful traditional practices such as female genital cutting or other forms of unwarranted surgery, the most common worldwide cause of vesicovaginal fistula is obstructed labour.^{13–15}

Obstructed labour and its consequences

Labour becomes obstructed when a woman cannot deliver her baby through her birth canal because of a discrepancy between the size of the fetus and the space available in her pelvis (figure 2). Two major evolutionary forces have made human females uniquely susceptible to this cephalo-pelvic disproportion: the assumption of an erect bipedal posture, which has imposed structural constraints on the architecture of the human pelvis; and the increasing size of the human brain over time. As a result, the mechanics of childbirth are more complicated in *Homo sapiens* than in any other mammalian species.¹⁶ To negotiate the changes in pelvic anatomy imposed by an upright posture and bipedal gait, the human fetal head must constantly readjust its position in the pelvis throughout the second stage of labour. If the passenger will not fit through the passage, a pelvic impasse results. The disproportion between the

Panel: The obstructed labour injury complex**Urological injury**

Vesicovaginal fistula
 Urethrovaginal fistula
 Ureterovaginal fistula
 Uterovaginal fistula
 Complex combined fistulas
 Urethral damage, including complete urethral destruction
 Bladder stones
 Stress incontinence
 Marked loss of bladder tissue from extensive pressure necrosis
 Secondary hydronephrosis
 Chronic pyelonephritis
 Renal failure

Gynecological injury

Amenorrhoea
 Vaginal stenosis
 Cervical injury, including complete cervical destruction
 Secondary pelvic inflammatory disease
 Secondary infertility

Gastrointestinal injury

Rectovaginal fistula formation
 Rectal stenosis or complete rectal atresia
 Anal sphincter incompetence

Musculoskeletal injury

Osteitis pubis

Neurological injury

Foot-drop from lumbosacral or common peroneal nerve injury
 Complex neuropathic bladder dysfunction

Dermatological injury

Chronic excoriation of the skin from maceration by urine or faeces

Fetal injury

Fetal case-fatality rate of about 95%

Social injury

Social isolation
 Divorce
 Worsening poverty
 Malnutrition
 Depression (sometimes with suicide)
 Premature death

but timely access to emergency obstetric services is often non-existent in developing countries.²⁰ In such cases these women might be in labour for as long as 4 or 5 days without any effective intervention.^{3,21-24} What this problem means for the unfortunate woman has been succinctly summarised by Deborah Maine: "...we have all had our hearts wrenched by photographs of starving children. But how many people have imagined what it means to be in labour for five days, in pain, exhausted, knowing that your baby is already dead and you will die soon because the hospital where a cesarean section could be done is out of reach, either physically, financially, or socially?"²⁵ In Africa, obstructed labour is a major cause of maternal mortality, but for many women the consequences of surviving this ordeal may be worse than death itself.

In obstructed labour the soft tissues of the pregnant woman's vagina, bladder, and rectum are compressed between the fetal head and the maternal pelvic bones by the contractions of the uterus. As the fetal head is forced tighter and tighter into the pelvis, the blood supply to the mother's soft tissues is progressively constricted, and, ultimately is shut off completely. The result is a widespread ischaemic injury that produces massive tissue damage throughout the maternal pelvis as well as fetal death from asphyxiation. In a day or two the dead fetus becomes macerated, softens, and changes its conformation in the maternal pelvis sufficiently that it can be expelled through the vagina. A few days later a slough of necrotic tissue comes away, leaving a fistula between the bladder and the vagina (or sometimes between the rectum and the vagina) in its place (figure 2).

Vesicovaginal fistula that occasionally occurs after a hysterectomy is a relatively simple injury: it is caused by a discrete wounding of otherwise normal tissue (such as a misplaced clamp or a suture in combination with a pelvic haematoma or abscess). By contrast, the fistula produced by obstructed labour is the product of a massive field injury caused by the impacted fetal head. The most visible evidence of this process is the area of central necrosis in which the fistula develops, but the fistula itself is surrounded by a variable area of living but still abnormal tissue that has sustained a sublethal ischaemic injury. This damage in turn may result in dense scarring that makes subsequent surgical repair extremely difficult.²¹ Although the focus of clinical interest has traditionally been the injury to the bladder that occurs in these cases, vesicovaginal fistula is only one of a range of devastating injuries that can be produced by obstructed labour. Because the crush injury in this condition affects a broad area that corresponds to the size of the presenting fetal part, the tissue destruction is often extensive, resulting in a cascade of related multisystem injuries known as the obstructed labour injury complex (panel).²² These additional injuries include vaginal stenosis due to scar

presenting fetal part (usually the head) and the available space in the maternal pelvis is the key to the development of obstructed labour.¹⁷ This problem is especially prevalent in parts of the world where girls grow up malnourished, marry early, and become pregnant before they have achieved full pelvic growth.^{18,19}

The problem faced by women trapped in obstructed labour must be solved by surgery (caesarean delivery),

tissue formation and subsequent vaginal contracture (sometimes with virtual obliteration of the vagina),^{26,27} amenorrhoea and secondary infertility,²⁸ rectovaginal fistula formation,^{21,23,29} hydronephrosis and renal failure,³⁰ damage to the pubic symphysis,³¹ and foot-drop caused by compression injuries to the nerves supplying the lower extremities.³²

Classification

The location of an obstetric fistula depends on where in the course of the second stage labour becomes obstructed and which tissues are trapped between the bony pelvis and the fetal head.³³ Thus, a fistula can involve almost any series of contiguous structures in the pelvis: ureterovaginal fistula, vesicouterine fistula, vesicocervical fistula, vesicovaginal fistula, urethrovaginal fistula, rectovaginal fistula, and combinations of such injuries. Since the work of J Marion Sims in the 19th century, surgeons have devised various systems for classifying and describing the nature and location of obstetric fistulas,³⁴ but there is still no general agreement on how this should be done. As McConnachie noted in 1958, "It is common to find that each author has either used his own form of classification based solely on the anatomical structures involved, or the size of the fistula, or even one of convenience".³⁵ Fistulas are most commonly described simply by location, as mid-vaginal, juxtacervical, urethrovaginal, and so on. Although new systems for classification continue to be proposed,^{36,37} there is still a general lack of agreement about what a classification system ought to do. In oncology, for example, many internationally accepted systems exist for staging cancer. These systems have all been correlated with the prognosis for treatment of the particular cancers for which they have been developed. Similarly, any useful classification system for obstetric fistulas should be more than descriptive: it must evaluate or score prognostic factors relevant to treatment outcome. To date, no proposed classification system for obstetric fistula has been prospectively evaluated to investigate how it correlates with surgical outcome. Until this is done, classification systems for obstetric fistulas will remain intellectual exercises of limited clinical use.

Detailed review of published work suggests that the main prognostic factors affecting the treatment of obstetric fistulas are the degree of scarring in the operative area, whether the continence mechanism of the urethra and bladder neck is involved in the fistula, the size of the fistula (particularly if there has been extensive loss of bladder tissue from necrosis), and the presence of other serious injuries, such as a concurrent rectovaginal fistula.³

Treatment

The treatment of obstetric vesicovaginal fistula depends on when the patient presents for care after obstructed

labour. Because of the shortage of accessible emergency obstetric services in areas of the world where fistulas are prevalent, most women present months or years after their injuries.^{3,21,23} If a woman presents within the first 3 months after injury, prompt initiation of continuous bladder drainage with an indwelling catheter can allow spontaneous closure of the fistula, particularly if it is small (<2 cm in diameter).^{38,39} Because fistulas from prolonged obstructed labour occur as the result of a broad field injury with an area of central necrosis surrounded by living but still severely damaged tissues, the traditional teaching has been that 3 months should elapse before any attempt at surgical closure is made so that the full extent of the injury is manifest. In 1994, Waaldijk advocated early surgical intervention in vesicovaginal fistulas from obstructed labour, apparently with good success,⁴⁰ although his practice of doing such operations without anaesthesia must surely be regarded as unethical in the 21st century.⁴¹

The ultimate goal of fistula surgery is to restore normal function of the lower urinary tract and any other pelvic structures affected. This process is more challenging than simply closing the fistula, which has been done with a high degree of success in 80–95% of cases in most series.³ The best chance of fistula closure is generally agreed to be at the time of the first operation. In a large series of 2484 patients, Hilton and Ward⁴² reported successful fistula closure in 83% of patients at the first attempt, whereas successful closure was achieved in only 65% of patients who needed two or more operations. Similarly, there is general agreement that the fistula, which may be encased in scar tissue, should be freed completely from the surrounding tissues so that the edges can be coapted easily and closed without any tension on the suture line. The repair should be watertight at the time of closure. Where possible, it is generally preferable to close the fistula in several layers and to drain the bladder for 14 days after surgery to prevent overdistension of the repair, although the precise duration of postoperative bladder drainage remains more a matter of tradition than evidence-based practice. Especially in complex fistulas where extensive pressure necrosis of surrounding tissues has occurred, it is often prudent to bring in a new blood supply by use of a bulbocavernosus or other tissue graft as an adjunct to repair.^{43,44}

Urinary incontinence after fistula closure

The emphasis on vesicovaginal fistulas as a cause of urinary incontinence in developing countries often leads to the assumption that closure of the fistula is all that is necessary to restore continence in affected women. Unfortunately, even in cases where the fistula has been successfully repaired, 16–32% of women remain incontinent.^{21,45} Although urodynamic assessments of women with obstetric fistulas who have undergone repair are infrequent because of the absence

of appropriate equipment in most facilities seeing large numbers of fistulas,⁴⁶ the most common reasons for successful closure but continence failure seem to be damage to the bladder neck and urethral sphincter mechanism during labour, altered detrusor activity, bladder fibrosis, and (in some cases) markedly reduced bladder capacity after closure of extensive fistulas, which can result in a bladder with a functional capacity of less than 50 mL. Treatment of women with persistent stress incontinence after fistula closure is frequently challenging, because of the extensive scar tissue that often forms around the affected tissues. Several authors have recommended the routine placement of urethral suspension stitches at the time of fistula closure to prevent post-repair incontinence, but these techniques have only had limited success.^{47,48} The best results seem to be obtained with procedures that involve some combination of urethrolisis, which frees the urethra from entrapment in scar tissue, and the addition of some type of compressive suburethral sling.^{49–52} If the urethra has been completely destroyed by obstructed labour, some form of urethral reconstruction is necessary if continence is to be restored.⁵³

Psychosocial damage resulting from obstetric fistula

Published work on obstetric fistula often focuses exclusively on the hole in the bladder and does not pay enough attention to the whole patient. The psychosocial circumstances in which these women find themselves as the result of having sustained an obstetric fistula can be even more devastating than the physical injuries themselves. Rather than experiencing the joy of first motherhood, vast numbers of young women become social pariahs every year because of these injuries.

Although husbands and family members may initially be supportive and compassionate to these women, when it becomes clear that the constant loss of urine or faeces is a chronic condition (viewed as incurable in the context of the traditional local culture) these women are usually divorced or abandoned by their husbands and are often cast out by their families.^{21,24,54–57} In an analysis of patients who presented at the Addis Ababa Fistula, Muleta²⁴ found that women who owned property of value were less likely to be divorced or abandoned by their husbands, but since obstructed labour and fistula formation is more common in young, primiparous adolescents who are likely to be illiterate and from impoverished rural areas, these injuries are most likely to affect women of low social status who are already among the most vulnerable members of society.

Additionally, the cause of fistula is not readily apparent to the surrounding community, who may view these injuries as a punishment from God for sexual misbehaviour or as a form of venereal disease, in essence blaming the victim for her predicament and further adding to the social stigma she encounters.^{55,57}

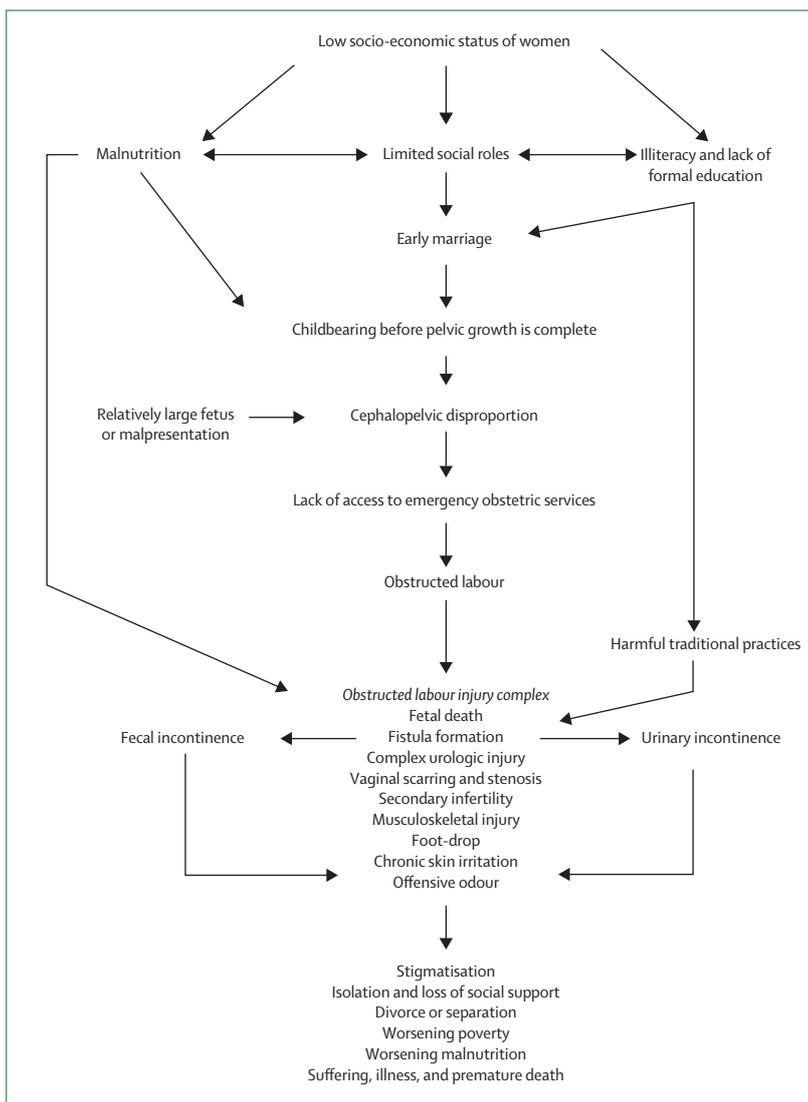


Figure 3: The obstetric fistula pathway

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Although little detailed research has been done on this issue, results of preliminary surveys suggest that depression, anxiety, and other forms of mental health dysfunction are widespread among women with vesicovaginal fistula.⁵⁸

Socioeconomic factors in obstetric fistula formation

Why is fistula so prevalent in developing countries? The answer lies in a complex interplay of biological, social, and economic forces (figure 3).^{3,57} Obstructed labour and subsequent fistula formation are most common in young primigravid women. African women are predisposed to dystocia because of the relatively narrow architecture of their pelves compared with Europeans.⁵⁹ Additionally, many African girls are married at a very

early age. The likelihood of obstructed labour is increased in areas where early marriage and childbearing are common, because although growth in height stops or slows with the onset of menarche, the capacity of the bony pelvis normally continues to expand after the epiphyseal growth plates of the long bones have fused.¹⁹ These problems are worsened if girls have been undernourished throughout childhood and adolescence.¹⁸ Thus, although girls are capable of becoming pregnant at a relatively early age, their pelvises do not develop their full capacity to accommodate childbearing until much later, and many will have their lives destroyed by obstetric injury before they have even crossed the threshold into true adulthood. In most case series, the average age of a fistula patient is younger than 25 years, and many are as young as 13 or 14 years.^{13,14,21,23,24,60,61} Although the risk of obstructed labour is greatest in younger mothers, any woman can develop the condition if the right combination of obstetric factors converge: large fetal size, malpresentation, intervening disease or malnutrition, etc. A bimodal distribution of fistulas has often been reported, with the highest peak in primigravid women and another peak among women who have had four or more pregnancies—a reflection, perhaps, of the tendency of birthweights to increase with subsequent gestations.⁶⁰

Probably the most important factors contributing to the high incidence and prevalence of obstetric vesicovaginal fistulas in Africa, however, are socioeconomic (figure 3).^{57,62,63} Poverty is the breeding-ground where obstetric fistulas thrive. Early marriage, low social status for women, malnutrition, and inadequately developed social and economic infrastructures are all more common in poor areas. Most importantly, lack of access to emergency obstetric services is ubiquitous in the poor areas of the world.

Fistulas are most prevalent where maternal mortality is high. Most maternal deaths are due to preventable causes: haemorrhage, infection, hypertensive disorders of pregnancy (pre-eclampsia and eclampsia), unsafe abortion, and obstructed labour. Although the prevention of maternal death from these causes requires skilled medical and surgical care, none of these interventions requires high-technology resources. The essential elements of emergency obstetric care are intravenous fluids, antibiotics, blood transfusion, oxytocic drugs, and basic surgical services (which can usually be provided under spinal anaesthesia).^{8,10,64} However, even these simple life-saving services are usually unavailable in low-resource areas.

From a historical point of view, it should be noted that maternal mortality rates in western Europe and the USA at the beginning of the 20th century were similar to those in the developing world. The widespread diffusion of access to emergency obstetric services accounted for the dramatic fall in maternal deaths

between 1935 and 1950, and it is largely the absence of effective access to emergency obstetric services that accounts for both the high levels of maternal death and the tragic prevalence of vesicovaginal fistulas throughout Africa today.^{8,10,62,65} In parts of the world where obstructed labour is a major contributor to maternal mortality, the rate of vesicovaginal fistula might even approach the maternal death rate.^{42,60}

Prevention and treatment: the public-health challenge

Virtually all obstetric fistulas could be prevented by adequate intrapartum care that would detect the abnormal progression of labour and would allow timely intervention before labour became obstructed. Simple graphic analysis of the progress of labour (the partograph) used by trained birth attendants reduces maternal deaths, prevents prolonged labour, and even results in a decrease in operative intervention (by allowing normal labour to proceed without unnecessary interference);⁶⁶ yet even this level of basic obstetric care is absent throughout most of the developing world.^{8,10,62} The provision of essential obstetric services has never been a top priority for the governments of countries where the fistula problem is most severe. The maternal health programmes that do exist are often restricted to provision of rudimentary prenatal care or emphasise birth control, but family planning programmes and antenatal health care services by themselves will never have more than a marginal effect on maternal mortality. Most maternal deaths are due to unexpected complications that cannot be predicted in advance but that demand prompt intervention when they occur: haemorrhage, hypertensive crises, sepsis, complications of unsafe abortion, and obstructed labour. The international public health community has not emphasised the critical need for surgical services in the developing world, and this problem has been made worse by lack of meaningful ongoing communication between the public-health community and clinical obstetrician-gynaecologists.^{8,10,67}

In the meantime, the backlog of unrepaired fistulas continues to increase throughout these impoverished countries. Since fistulas by themselves are not fatal, the millions of women thus afflicted continue to live lives of unremitting misery, while tens of thousands more are added to their ranks every year. The basic techniques needed for fistula repair have been known for more than 150 years.^{3,68} Most recent advances in fistula surgery have come in the areas of improved anaesthesia, synthetic suture materials, better urinary catheters, and techniques of tissue grafting, rather than from breakthroughs in basic science. Fistulas can be repaired at minimal cost with low-technology surgical operations done under spinal anaesthesia, yet even these basic surgical services are unavailable in most developing regions.³ Pilot studies have shown that the techniques

needed to repair uncomplicated fistulas can be taught quickly and efficiently to doctors who already have basic surgical skills.⁶⁹ There are even spectacular cases in which intelligent but uneducated individuals with good manual dexterity can be taught to become expert fistula surgeons.

However, possession of surgical skills is not enough. Numerous other problems are associated with providing fistula repair services in developing countries.^{3,21,24,55,70,71} Fistula sufferers tend to be young, illiterate, destitute women from rural areas, without political influence or economic resources.^{21,24,30,56,57} These women cannot pay even the modest rates charged for surgery at most hospitals in Africa. Fistula repair must be an act of charity, but other surgical patients who are required to pay for their own care resent the provision of free services of this kind. Furthermore, fistulas are severely stigmatising. In many African countries, difficult labour is believed to be a punishment sent by God or the ancestors for adultery on the part of the woman, loading a moral stigma on top of a physically offensive condition.^{54–57,72} The necessity for prolonged catheter drainage after surgery (10–14 days) to permit the bladder to heal means that fistula patients need longer hospital stays and more intensive nursing care than do many other surgical patients—which, in turn, makes them unpopular with nursing staff. Furthermore, fistula cases are rarely emergencies. In hospitals that provide general surgical services, scheduled fistula cases are frequently bumped from the operating list because of road traffic accidents or other life-threatening emergencies. In no area of the health-care systems of developing countries are fistula patients a high priority. They are at the bottom of the heap socially, sexually, economically, politically, and medically.

There is, therefore, an urgent need for countries with large numbers of women who have vesicovaginal fistulas to develop specialised centers dedicated exclusively to the care of these women. Not only does this focused factory approach allow maximum efficiency of patient care (the Addis Ababa Fistula Hospital, the outstanding model of this kind, has now treated more than 25 000 fistula patients), but it also allows for the development of a uniquely supportive sisterhood of suffering among these women that is a key component in healing their psychosocial wounds.^{55,72} Much of the nursing care in such a hospital can actually be provided by current or former fistula patients, which further strengthens the sense of community among these women.

The most important need, however, is for the obstetric fistula problem to move up the list of international health-care priorities. The launch of an international campaign to end fistula spearheaded by the United Nations Population Fund (UNFPA) and partnering organisations such as Engender Health and the Worldwide Fistula Fund is a step in the right direction, but little true progress will be made until politicians

and health administrators in developing countries put this issue on their national health-care agendas themselves. As Shiffman and colleagues have shown, the factors that raise the priority of safe motherhood and related issues in such countries are complex, but individual case studies suggest that cooperative relations between ministries of health and international organisations, creation of inclusive international health-policy networks, and provision of adequate external aid, coupled with pressure from dedicated local activists, can reshape health-care priorities for women in countries as diverse as Indonesia and Honduras.^{73,74} A heightened awareness of the burden of injuries such as vesicovaginal fistulas might help to rekindle the faltering international commitment to reduce maternal mortality, especially if dedicated fistula champions mobilise support at the local level to demand that action be taken on this issue.^{70,71,74,75}

Although the obstetric vesicovaginal fistula has vanished from the collective memory of more developed countries, it continues to ruin the lives of tens—if not hundreds—of thousands of young women every year. This situation is a mark of shame on the world medical community and demands urgent and sustained action.

Conflict of interest statement

I am the founder, President, and managing director of the Worldwide Fistula Fund, a not-for-profit charitable organisation registered in the state of Illinois, which is recognised as a public charity under section 501(c)(3) of the United States Internal Revenue Code. The purposes of this charity are to provide direct clinical services to women in the developing world suffering from childbirth injuries, especially vesicovaginal fistulas from prolonged obstructed labour, and to advance public awareness, education, surgical training, and advocacy for these women.

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For Campaign to End Fistula see <http://www.endfistula.org>

For Worldwide Fistula Fund see <http://www.worldwidefistulafund.org>

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