

East African Medical Journal Vol. 80 No. 9 September 2003

FOURNIER'S GANGRENE COMPLICATING VASECTOMY

V.M. Lema, MBChB (Mak), MMed (Nbi), Professor, Department of Obstetrics and Gynaecology College of Medicine, University of Malawi, Private Bag 360, Chichiri, Blantyre 3, Malawi

FOURNIER'S GANGRENE COMPLICATING VASECTOMY

V.M. LEMA

ABSTRACT

Quality of care of services provided to family planning clients is a source of major concern in reproductive health care, especially in resource-poor settings. It may be measured in terms of safety of the method or service provided and may be influenced by the knowledge, skills and experience of the service providers, the environment in which the services are provided and the care thereafter. As a result of various efforts by the government and other stake-holders there have been tremendous developments in the family planning programme in Malawi in the past ten or so years. The contraceptive prevalence rate (CPR) more than doubled between 1992 and 2000. Secondly there has been expansion of facilities providing contraceptive services and the method mix such as introduction of voluntary surgical contraception (VSC) for both females and males. The increased demand for contraceptive services has outstripped the available services and as a result led to lapses in the quality of care. These have resulted in some apparently healthy individuals either dying in the course of or following service provision or suffering serious morbidities. This paper presents two cases of Fournier's gangrene following vasectomy in previously healthy male adults in Malawi. It discusses their diverse management and results thereof, and explores the potential impact on the programme in Malawi, in the context of adverse publicity on contraceptives. The possible operational factors for the complications are explored and preventive strategies proposed to ensure sustenance of the already registered gains in fertility control in Malawi.

INTRODUCTION

Male involvement in fertility regulation/control has been fairly passive until very recently in Malawi as indeed other countries in the region (1-3). They usually sent their wives or partners to the family planning clinics or services outlets, often with clear instructions as to what method to ask for whether the wife wants it or not, or it is appropriate or not. The wife/partner would in most cases comply, often due to her lack of ability to negotiate with their male partners on such matters or fear of reprisals should she not do so (4). However, the past ten or so years have registered dramatic changes in this regard. Many men not only accompany their wives to the family planning service outlets, but are themselves also taking active part in fertility control themselves. The proportion of men using condoms and vasectomy has gone up though modestly (2).

Partly in response to the resolutions and programme of action of the International Conference on Population and Development (ICPD) (Cairo) (1994) (5), as well as other regional and international conferences and meetings (6,7) the Malawi government has since 1992, instituted several strategies to address fertility and regulation thereof. There has also been pressure, though subtle, from major international institutions and

organisations, including donor agencies, to curb population growth as part of socio-economic development, by increasing contraceptive uptake and utilisation. Notable amongst the strategies have been intensified information, educational and communication (IEC) campaigns, expansion of family planning service outlets including collaboration with non-governmental organisations (NGO's) and increased method mix, to address the needs of previously neglected groups of individuals such as males and adolescents (8).

One notable addition to the method-mix in Malawi is the introduction of voluntary surgical contraception (VSC) initially for females and later on for males as well. While tubal ligation or female sterilization has been available in Malawi from as far back as the late 1960's, it was performed in conjunction with other surgical procedures such as Caesarean section or for medical reasons and in very few mission and government hospitals by two or so dedicated health workers.

Minilaparotomy under local analgesia (MLA) performed on request and on an out patient basis was made available after 1992, following training of a few health workers. Since then there has been an upsurge in demand for the service mainly due to motivation for maternal and child health and concerns about the economic implications of a large family (4,9). Male voluntary surgical contraception, i.e. vasectomy, is a

fairly new addition to the method mix in Malawi. Initially offered at only one mission hospital between 1992 and 1995 and later at the Central Teaching Hospital from 1996 by the author, is also now being offered in a leading local reproductive health non-governmental organisation (NGO) clinical facilities by one trained clinician. To date about 300 such procedures have been performed in Malawi.

Although there has been considerable increase in the "demand" for contraceptive services for social, health, economic, as well as other reasons (4,9,10), it has not been matched by a corresponding increase in the "supply" system. According to the national contraceptive policy and guidelines, all health facilities are supposed to provide contraceptive services (8). However this is not the case. Even at the University Teaching Hospital surgical contraceptive services cannot be provided on a regular basis, for various constraints (1). Training of service providers has not progressed as well as expected due to dependence on donor support, which is becoming more unreliable due to donor fatigue among other reasons. There is also paucity of eligible personnel to be trained. The above scenario has inevitable consequences. The quality of care provided to clients is inevitably below optimal. Consequently we have witnessed an upsurge in the proportion of clients sustaining serious complications following contraceptive services, as well as the variety and severity thereof. A number of clients have sustained permanent damage and a few have lost their lives as a result of complications sustained in the course of or after provision of contraceptive services. These developments have raised an alarm and concerns over the quality of training and therefore of service provision to family planning clients.

This paper is based on two male adults at the prime of their lives, who had vasectomy for contraceptive purposes at one clinic outlet of the leading reproductive NGO referred to above in early 1999 by one clinician who had been trained just five months previously. They both sustained Fournier's gangrene. They were followed up for two and a half years to monitor their recovery process and any complications, as well as for continued counseling and psychosocial support. The paper explores the possible operational factors for that and discusses their diverse management and results thereof. The potential impact thereof to the family planning programme in Malawi is highlighted, and possible preventive strategies proposed.

CASE REPORTS

Case 1: Mr. W.C. a 40 year old District Agricultural Officer, with four living children, presented himself for a scheduled vasectomy, for which he had requested and been counseled at one of the clinics of a leading local reproductive health NGO in mid February, 1999. He had decided to have vasectomy, as he and his wife did not want anymore children. His wife, a Secretary, had

experienced a lot of health problems while using an intrauterine contraceptive device (IUCD) initially and later combined oral pills. He felt he should spare her further health problems and therefore opted to have vasectomy.

The procedure, a non-scalped vasectomy, was performed by a Clinical Officer the only one trained to do so in the NGO. According to the records, the procedure was uneventful and the client was given routine post-procedure counseling, education and information. He was put on antibiotics and analgesics following the NGO's guidelines and advised to report back to the clinic for review after seven days or earlier if he had a problem.

Three days later he noted a painful swelling on his scrotum. He reported to the clinic and was seen by another Clinical Officer, who prescribed paracetamol and reassured him that there was no "cause for concern". The pain and swelling worsened and on the seventh day after the procedure, he went back to the clinic. He was given doxycycline 100mg twice daily and metronidazole 400 mg thrice daily and sent home. On day ten, the condition was even worse despite the treatment. He could not walk or sit up because of the swelling and pain. His wife took him back to the clinic, from where the author who serves a Medical Consultant for the NGO, was consulted.

On examination by the author he was found to be in severe pain, afebrile, not toxic or dehydrated. He was stable haemodynamically. He had Fournier's gangrene involving the scrotum, the ventral and lateral aspects of the proximal half of the penile shaft. The perineal and perianal areas were not involved. He was promptly admitted to one of the city's private hospitals and started on parenteral broad-spectrum antibiotics, analgesics and intravenous fluids. Relevant laboratory tests were conducted. Their results were within normal limits, apart from a raised total white blood cell count with neutrophilia. HIV serotest was negative.

A general surgeon was consulted and after adequate resuscitation and stabilisation, the patient was taken to theatre. An examination under anaesthesia (EUA) confirmed the earlier clinical observations. Extensive debridement of the affected skin was performed and the exposed raw areas cleansed thoroughly with warm-saline and hydrogen peroxide. The testes, the exposed corpora of the proximal half of the penis and whole of the distal half of the penis were found to be healthy. The testes and penis were then dressed with sterile gauze and supported by a crepe bandage.

Post operatively he received the same antibiotics, analgesics and IV fluids. After a week, the dressing was removed and thereafter changed regularly. The patient made steady progress. By day fourteen post-surgery, there was good granulation tissue and the wound was clean. Skin grafting was performed, the testes being covered by investing the remaining scrotal skin and split skin flaps from the thigh used to cover the penile shaft. The graft took well and the scrotum healed well. At the

end of six weeks, the wounds had healed well. Upon enquiry into sexual sensations the patient reported that he had experienced two penile erections in the preceding week. He was subsequently discharged from the hospital six and a half weeks after admission.

He was examined by the author on a number of occasions thereafter as part of his postoperative follow up plan, the last being about six months ago, he had made reasonable recovery. His sexual performance was not as it was before - the wife complained that she does not get as "satisfied" as before, because the penis was shorter and therefore does not "reach where it used to". She was however slowly adjusting to the changes.

Case 2: Mr. K.B., a 37 year old peasant farmer, with five living children and his wife expecting their sixth child, had been motivated by a community-based distribution-agent (CBDA) for vasectomy during one of her rural health educational, information and communication (IEC) campaigns. He had subsequently gone to another clinic of the same NGO, for advice. He was counseled and agreed to have vasectomy.

The procedure was performed by the same Clinical Officer, and in the same facility as the first case, in March 1999. According to the records it was a non-scalped vasectomy with cauterization of the vas deferens and was uneventful. He was put on antibiotics and analgesics and given an appointment to go back to the clinic where he was seen first, as it was nearer to his home, after seven days for check-up or earlier if he experienced any problem. He did not turn up as scheduled. Ten days after the procedure, the same CBDA was sent to find out why he had not reported back and if all was well. She found him in severe pain and in bed. She promptly reported the findings to the Clinic Manager, who arranged for transport to collect and bring him to the clinic for assessment. When he arrived at the clinic, the Clinic Manager and Clinical Officer felt his condition was too serious for them to handle. The author was consulted again, who saw the patient and after examination diagnosed severe Fournier's gangrene limited to the scrotum. The penile shaft, perianal and perineal areas were not involved. He was disshelved, dirty and unkempt. He was febrile but not toxic and was mildly dehydrated. He had no problems with micturition or defaecation. He was promptly admitted to another private hospital in the city, but due to logistical problems, there was a delay of four hours. He was given intravenous fluids for resuscitation, parenteral broad-spectrum antibiotics augmentin 1.2 gm and metronidazole 500 mg, both intravenously and eight hourly and analgesics.

Relevant laboratory tests were done, and they revealed a leucocytosis of $12,000/\text{mm}^3$ with neutrophilia (76%), normal haemoglobin concentration (128 G/L) and platelet count. HIV serotest was non-reactive. Urinalysis was unremarkable, and a blood culture did not reveal any pathogens. He was bathed and given a

change of clothes. A review four hours later showed adequate rehydration and a more stable condition. Surgery was scheduled for three hours later as there was another surgery taking place.

When the author arrived with the surgeon with whom he had managed the first case, he found that the hospital's resident surgeon was just completing operation on the patient. When asked why he had operated on a patient not under his care, the surgeon had no plausible explanation. Upon review of what he had performed we learnt that he had performed bilateral orchidectomy. He was asked again why he did orchidectomy and if he explored the testes for viability prior to doing so. Again he had no explanation. The three doctors inspected the testes and found they were healthy, indicating that the infection was limited to the scrotal skin only.

Due to the storm over the management of the patient, the hospital surgeon discharged him hurriedly two days later without consulting the author who had admitted him. The surgeon had already given him testosterone implant, without even counseling him.

The author never saw the patient until three months later. By then the wound had healed well. He was asked about sexual intercourse, to which he responded positively. He had good penile erections, and sexual performance was okay according to him. I saw him on a three monthly basis for the first year, and then six monthly. The last review was about four months ago. He was doing very well, had put on weight. Sexual performance was reportedly satisfactory. He continued to receive six monthly dose of testosterone.

To alleviate the pain caused and compensate him, arrangements were made for the NGO to pay his hospital bills, including the six monthly testosterone implants, and employ him as a gardener/cleaner at one of its clinics.

DISCUSSION

Alfred Fournier (1883) described a clinical condition characterised by abrupt onset of rapidly fulminating idiopathic genital gangrene in previously healthy young men (11). The condition was thereafter named Fournier's gangrene in his honour. Other later scientists have described it as an infective necrotising fasciitis of the perineal, perianal and genital regions (12-14). The infective process leads to thrombosis of subcutaneous blood vessels resulting in gangrene of the overlying skin (15,16). The resultant ischaemia from endarteritis thrombosis allows further proliferation of a variety of pathogenic organisms (17,18), which may in turn worsen the condition leading to its extension. Whereas the pathology is often limited to the scrotal and penile shaft skin, thus sparing the testes, and penile corpora (12,19), other adjacent areas such as the perineal, perianal and anterior abdominal wall may also be involved (14,16,17,20,21).

The presented two cases fit the earlier category in that their pathological condition, i.e. gangrene, was limited to both penile shaft and scrotal skin for the first patient and scrotal skin only for the second patient. Fournier's gangrene is said to occur commonly in males aged 22 to 76 years, with a mean of 46 years (22). Our reported clients were aged 42 and 37 years respectively, thus at the prime of their lives and within the reported age range.

Several conditions have been reported as causes of Fournier's gangrene. They include infections in the genito-urinary system, anorectal or skin around the genitalia (12,15,17), circumcision (19) and trauma (17,22). Chantarasak and Basu (23) and Patel *et al.* (24) reported cases of Fournier's gangrene following vasectomy. Some of the predisposing factors to it include diabetes mellitus, trauma, malignancy, malnutrition, renal failure, cortisone therapy, lupus erythromatosis (SLE) and AIDS (12,15). In a study of 13 patients in Enugu, Nigeria, Attah (21) reported that the main predisposing factor was filarial disease of the scrotum, which became secondarily infected. It is also reported that in majority of patients there is no obvious cause or predisposing factor (12,22,25).

The two patients who presented had vasectomy for surgical contraception. They were otherwise very healthy prior to and after the procedure. The first patient had no obvious risk factors, while the second appeared to have general poor hygiene when seen by the author. At the time of the procedures the clinician had performed 25 such procedures using the same approach and technique and in the same facility. They were also performed a month apart. Other clients, males and females, had had surgical contraceptive procedures such as vasectomy and tubal ligation, by the same clinician and two others at the same facility. These were the only two who had sustained such rare and serious complications. It was not very clear what may have been the predisposing or aetiological factors. Perhaps poor hygiene may have played some role in the second sequenced case. Whether infection was introduced during the procedure or not, it is not clear. The only operational factor identifiable is the surgical trauma to the scrotum (9). For the cases reported by Chantarasak *et al.* (23) and Patel *et al.* (24), no obvious predisposing or causative factors could be identified either. Indeed Whitehead *et al.* (25), observed that about 50% of cases occur spontaneously.

The first presented case had surgical debridement followed by skin grafting of the penile shaft using flaps from the thigh and the remaining scrotal skin to invest the testes, as has been recommended by some workers (15,19, 26). He did very well thereafter. The second case was not so fortunate. He had bilateral orchidectomy, which was unnecessary. This may be because of lack of experience in managing such cases by the surgeon in question, as the condition is quite rare (12,13).

Whereas, both men did reasonably well sexually after the surgery, there were problems. The first patient

was experiencing obvious psychosocial problems as his wife was not enjoying sexual relations as before. The second one depended on exogenous testosterone for "normal" sexual intercourse. He did not seem to have any obvious psychosocial problems, and he and his wife had not complained due to absence of testes! Whether this will or will not be a source of concern to either in future remains to be seen. Also whether and for how long the NGO will continue to pay for the testosterone implants is at the moment not clear. When it stops paying for the treatment there will definitely be problems, as he cannot afford it. He is still quite young and so is his wife, thus sexual relations will be important to them for a number of years to come. The other potential problem is the likelihood of side effects of exogenous testosterone. There are no plans for follow up evaluation to monitor that.

In the past one or so years there has been adverse, even though unfounded publicity over contraceptives in Malawi. There have been press "reports" implying that some contraceptives such as the combined oral contraceptives cause "maternal deaths". Attempts to dissuade the public that these reports are untrue have not been very successful. We have also had deaths of apparently healthy women following tubal ligation; surgery to remove translocated intrauterine contraceptive devices and hysterectomy due to uncontrolled haemorrhage following tubal ligation. Some of these have been reported in the local press, and many potential clients have expressed apprehension as a result. Incidents like the reported ones, though not fatal, will only fuel the above allegations regarding potential harmful sequelae of contraceptives and related procedures or services. They will in turn drive away potential clients, especially considering the damage sustained and their likely sequelae.

The potential of litigation by such clients, as for the first patient, and payment of huge medical bills and out of court settlements as compensation to victims, may deter reproductive health non-governmental organisations, private health institutions and clinicians from offering such services to a population in great need. These will have serious and far-reaching consequences for the family planning programme in Malawi.

Malawi, like other developing countries has tried to respond to international pressures from donor countries and agencies to curb population growth by intensifying contraceptive uptake and utilisation. This response has resulted in increased demand, service outlets and contraceptive method-mix. However these have not been matched by an increase in the number of qualified and experienced service providers. This is unfortunate. There is therefore a need to ensure that as we continue to expand contraceptive uptake and utilisation in Malawi and elsewhere in the region, we look critically at the issue of training of service providers. We should also ensure provision of quality services to the public to prevent repeat of such unfortunate sequelae. These are necessary ingredients for sustenance of the successes already registered by the programme in Malawi.

REFERENCES

1. Lema, V.M.; Mtimavalye, L.A.R. and Gondwe, N.N. Utilisation of family planning services at the teaching hospital in Blantyre, Malawi. *East Afr. Med. J.* 1994; **71**:703-711.
2. National Statistical Office, Malawi Demographic and health survey. 2000. Zomba, Malawi, 2001.
3. Lema, V.M., and Makhoha A.E., Vasectomy: Preliminary report of 25 cases. *East Afr. Med. J.* 1990; **67**:86-94.
4. National Research Council. Factors affecting contraceptive use in Sub-Saharan Africa. *Washington D.C. National Academy Press.* 1993.
5. United Nations. Report of the International Conference on Population and Development Cairo, Egypt. September 5-13, 1994. United nations, NewYork. 1995.
6. Economic Commission of Africa. Kilimanjaro Plan of Action" Second African Population Conference, Arusha, Tanzania. January 9-13, 1984.
7. The World Bank. Population growth and policies in sub-Saharan Africa. Washington D.C. 1986.
8. Ministry of Health and Population. *National Reproductive Health Policy and Guidelines.* Lilongwe, Malawi. 2002.
9. Westoff, C. F. Reproductive preferences: A comparative view DHS Comparative studies. Calverton, MD. USA: Macro International, 1991; 5.
10. Biddlecom, A.E., and Fapohunda, B.M., Covert contraceptive use: Prevalence, motivation and consequences. *Stud. Int. Fam. Plann.* 1998; **29**:360-372.
11. Fournier, J.A. Gangrene foundroyante de la verge *Med. Prat. Paris.* 1883; **4**:589-597.
12. Clayton, M.D., Fowler, J.E., Shariff R., and Pearl, R.K. Causes, presentation and survival of 57 patients with necrotising fasciitis of the male genitalia. *Surg. Obstet. Gynecol.* 1990; **170**:49-55,
13. Jones, R.B., Hirschmann J.V., Brown G.S., and Tremann J.A. Fournier's syndrome; necrotising subcutaneous infection of the male genitalia *J. Urol.* 1979; **122**:279-282.
14. Dellinger, E. Severe necrotising soft-tissue infections. *J. Amer. Med. Ass.* 1981; **246**:1717.
15. Laucks, S.S. Fournier's gangrene. *Surg. Clin. N. Amer.* 1994; **74**:1339-1352.
16. Lamb, R. and Juler, G. Fournier's gangrene of the scrotum. A poorly defined syndrome or misnomer?" *Arch. Surg.* 1983; **118**:38.
17. Paty, R., and Smith A. Gangrene and Fournier's gangrene *Urol. Clin. N. Am.* 1992; **19**:149.
18. Shariff, R. Perineal necrotising infection *Curr. Surg.* 1990; **47**:1.
19. Flanigan R.C. Diagnosis and treatment of gangrenous genitalia *Surg. Clin. N. Am.* 1984; **64**:715-720.
20. Cunningham, B., Nivatvongs, S., and Shons, A. Fournier's syndrome following anorectal examination and mucousal biopsy *Dis. Colon Rectum.* 1979; **22**:51.
21. Attah, C.A. New approach to the management of Fournier's gangrene. *Brit. J. Urol.* 1992; **70**:78-80.
22. Kovakleik, P.J., and Jones, J. Necrotising perineal infections. *Amer. J. Surg.* 1983; **49**:163.
23. Chantarasak, N.D., and Basu, P.K. Fournier's gangrene following vasectomy. *Brit. J. Urol.* 1988; **61**:538-539.
24. Patel, A., Ramsay, J.W., and Whitfield, H.N. Fournier's gangrene of the scrotum following day care vasectomy *J. Royal Society, Med.* 1991; **84**:49-50.
25. Whitehead, S.M., Leach, R.D., Eykyn, S.J. Phillips 1. The aetiology of scrotal sepsis. *Brit. J. Surg.* 1982; **69**: 729-30.
26. Leenen, L.P., van der Werken C. Fournier's gangrene. *Acta Chir. Belg.* 1990; **90**:204-206.