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**FOOTPRINTS IN THE SAND:
A STORY ABOUT INFERTILE MEN AND OTHERS**

BY

DOMINIC NWANKWO OSEGBE



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INAUGURAL LECTURES SERIES

DEDICATION

**FOOTPRINTS IN THE SAND:
A STORY ABOUT INFERTILE MEN AND OTHERS**

An Inaugural Lecture delivered at the University of Lagos
on Wednesday, 14th January, 1998.

U. L. ARCHIVE

By
by

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DEDICATION

I have often been asked why I speak the language fluently and for Edo indigenes because my surname sounds like a con- This lecture is dedicated to the memories of my late mother - Madam Nwanyezele Elizabeth Osegbe and late Uncle Chief Godwin Ugochukwu Okafor Amuzie.

My birth coincided with the birthday of St. Dominic Savio. I inherited Nwagwunobi, my father being Agwunobi. I acquired the family name Osegbe, a poor contraction of OLISA EGBOLUMU OGU, which, when translated means that "God has fought my battle"; the response of a mother of six girls on getting a male child at her last attempt. To the best of my knowledge, there is no Osegbe outside my family in the world today - a rare name. I was born in Abatele, in Idemili Local Government Area of Anambra State.

In 1981, I was conferred the Chieftaincy title of AKUCHUKWU, and in 1989 HRH Igwe Edeogu I of Abatele installed me the ICHIE OKAKA, UODIORAMMA, ABATETE, and life member of the Igwe-in-Council, in recognition of services to the community.

I attended the mixed schools of Government and St. Mary's Catholic Primary Schools, Abak and passed out with Distinction in 1955. I then went to Holy Family College, Abak and obtained WAEC with a Grade One pass in 1960. Between 1961 and 1962, I attended St. Patrick's College, Calabar and obtained 3 principal level passes in Physics, Chemistry and Zoology. In 1963 I was offered admission to study medicine at both UCI and Medical School, Lagos.

In my secondary school days, I excelled in boxing and captained the Holy Family College team in 1960. This sports was later to greatly influence my life. It taught me how to play fair always, never to hit anyone below the belt, to back off a falling opponent, to avoid hasty judgement, not to underestimate a foe, to be magnanimous be it in defeat or victory. These form the codes of Fair Play at all sporting arenas today. I learnt them early in life through boxing.

I enjoyed football and was amongst the first XI of the College of Medicine, Lagos in 1965. I enjoyed ball-room dancing in the Medical School and was a foundation member of the Zee Club.

My organised medical training was disrupted by the Biafra-Nigeria war. I lost three years of my youth (1966-1970) to war but I have never regretted the life experience the war provided. I saw

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INTRODUCTION

U. L. ARCHIVE

I have often been mistaken for Efik because I speak the language fluently and for Edo indigene because my surname sounds like a common Benin name. I was born on Nkwo day, the last day in the 4-day Igbo calendar, hence I am Nwankwo. I was christened Dominic in the Catholic Church since my birth coincided with the birthday of St. Dominic Savio. I inherited Nwagwunobi, my father being Agwunobi. I acquired the family name Osegbe, a poor contraction of OLISA EGBOLUMU OGU, which, when translated means that "God has fought my battle"; the response of a mother of six girls on getting a male child at her last attempt. To the best of my knowledge, there is no Osegbe outside my family in the world today - a rare name. I was born in Abatete, in Idemili Local Government Area of Anambra State.

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My organised medical training was disrupted by the Biafra-Nigeria war, I lost three years of my youth (1968-1970) to war but I have never regretted the life experience the war provided. I saw

horror scenes that made Alfred Hitchcock's Series a child's play. Men, women and children were slain, maimed or mangled by famine, sword, fire, shell and harsh elements. I learnt the management of surgical injury not via tutorials but at the theatre of war. We prepared our intravenous fluids, and operated under the cover of the night.

I shall spare you the agony of broken limbs, shell-distorted faces, the groans of the injured as he twisted from side to side like a snake crushed on the highway. Those days tried men's hearts. The women were not spared. They were raped and abducted by retreating or advancing soldiers.

The war over, I obtained the MBBS degree of the University of Lagos in 1971. Without intending to be pompous, I was the first Nigerian to obtain by examination the coveted Fellowship Diplomates of the Edinburgh College (FRCSEd), 1977, and the Nigerian Postgraduate College of Surgery, FMCS (Urol), 1978. I was simultaneously appointed Consultant Surgeon to Lagos University Teaching Hospital and Lecturer 1 to the College of Medicine, University of Lagos. I was promoted Senior Lecturer and Associate Professor in 1982, and 1989, respectively. Effective from July 1992, I was appointed Professor of Urology - Surgery.

WHO IS A UROLOGIST?

A Urologist is a fully trained surgeon with Fellowship Diploma in Surgery who further specialised in the management of the urogenital problems in both males and females (kidney, ureter, bladder, and urethra, penis, etc.) and fertility and infertility, particularly in males. A Urologist has interest in the whole body, from the brain to the pubic hair. He pioneered the use of instruments called endoscopes (urethroscope, cystoscope, nephroscope, panendoscope, resectoscope, laparoscope, etc.) for the direct visualization of the internal spaces of the human body and he is the most versatile of all physicians, in their use. Indeed, no part of the urinary tract is hidden from the Urologist. The Urologist blazed the trail in organ transplant including kidney transplant. Today, the Urologist is in the vanguard of fertility control through the innovation of a knife-less vasectomy, a procedure which is inexpensive, quick, safe, simple and with no failure rates.

Vice Chancellor, this inaugural lecture is about a Urologist and how his work has impacted on the world of infertile men and how

his efforts have affected his immediate environment. I am a Urologist.

WHAT I BELIEVE

I have great admiration for Queen's College, Yaba, not because three of my daughters passed through its gates, rather for its motto:- "PASS ON THE TORCH". Great minds think alike, and so Professor E.O. Amaku, delivered his inaugural lecture here about 10 years ago entitled "That Water May Flow". Barbra Streisand, in the all time great classic "Hello Dolly", and in which Louis Armstrong of blessed memory, reached the peak of his perfection, said, and I shall paraphrase, that "money is like manure and that it is not worth a thing unless it is spread around, encouraging young things to grow".

I believe that knowledge must exhibit all the qualities mentioned above. It must, like a torch, pass from one to another. It must flow from one man to another. It must encourage growth. Devoid of these, I believe that knowledge is dead like a cadaver or dodo. This concept should summarise the mission of the University such as ours.

It is impossible to recreate on this stage and cram into one hour my 20 years of work as an academic. Like William Shakespeare did in *King Henry the V*, I shall implore you to use your imagination as I rush and jump over the times and events of my past.

MALE INFERTILITY:

The main thrust of my research has been on infertility in males and this lecture will focus on this.

We had no data on many questions that concerned infertility in male Nigerians. There were no answers to such questions as the incidence, pattern, causative agents, and remedy for male related barrenness in our country. When the fertility clinic was started at the Lagos University Teaching Hospital in the seventies, patient attendance was very low because in our society the woman got blamed for a "fruitless" marriage. The reason was simple. Fertility for the man, was equated with potency. The men had their mating prowess to show for their effectiveness and their spouses readily boasted of the "manness" of their husbands.

The family unit at the village level protected the fertile male. A wife was family possession and she was "our wife". The family was quick to identify the unproductive male member and internal arrangements usually sorted things out and male-factor related childlessness was therefore uncommon. With urbanization, the family unit with its built-in organization began to be less effective. Heavily locked gates, rigidly barred entry doors, and doubly bolted bed rooms prevented adventures by the house-wife. So whether the infertility was her fault or that of her spouse, she naturally was to blame.

I am, however, pleased to report that men have become more responsive to education and are now the first to demand that their own side be investigated too. In fact, today at Lagos University Teaching Hospital, 40% or more of our weekly outpatient attendances are by men, seeking solution to their sterile marriages.

In the management of infertility, it must be emphasized that the couple should be treated as a single unit. One or both partners may contribute causes that hinder conception. The right attitude is to work towards achieving conception without apportioning blame to any side.

It is true that 50% of barren marriages are related to the factor and this underscores the importance of involving the Urologist in the management of the infertile couple.

CAUSES OF MALE INFERTILITY IN NIGERIANS:

Causes of male infertility are well documented in *Caucasians*. Only a few, small-sized retrospective reports of these causes in an entirely African population were available. In the early 1980s, for example, Ntia, Kufeji and Amaku, studied only 30 patients. Because of the small population of these earlier studies, they failed to determine the frequency distribution and possible racial variation of the etiological factors. The result of four years of prospective study, Osegbe and Amaku: "The Causes of Male Infertility in 504 Consecutive Nigerian Patients", was published in *International Urology and Nephrology* in 1985

A lot of new facts emerged from the study:

1. the mean age of our infertile male was 34 ± 6.6 years,
2. the mean period of infertility in our people was 4.7 years (range 1/2-28 years),
3. about 66% of the men had never proven their manhood,

4. barrenness was preventable or correctable in 63.4% of cases,
5. the pattern of causes differed from that of the Caucasians.
6. brain hormone deficiency was found in only 0.4%,
7. many factors combined to produce infertility,
8. in 14% of the group, no intervention known to man could reverse the situation.

SICKLE CELL DISEASE AND FERTILITY

That sickle cell disease was associated with poor pregnancy outcome, high maternal death, and high childhood mortality, children dying before the age of 5 years, from anaemia, heart failure, infection, etc., was common knowledge. Its effect on male fertility was unknown.

The results of our pioneering studies were startling. We found out that no semen samples from the sickle cell subjects met the generally accepted minimum requirements for fertility, that is, 20 million sperm cells per ml, of which at least 40% should be alive and at least 60% should be well formed. The sickle cell male was subfertile at best and his chances of fathering any offspring were far too low for comfort. Our article Osegbe, Amaku, Akinyanju, "Fertility in males with Sickle Cell Disease", was published as a leading original article in the August 1981 of the *Lancet*, the world leading Medical Journal. All married males had barren marriages. The seminal fluid examination of Nigerian men with sickle cell anaemia at mean age 20.6 years showed that their sperm count, motility and morphology fell into the subfertile/infertile range.

The claim by one subject of extra-marital pregnancy was not supported by his semen profile. He was subfertile. Claims of paternity of a child born outside wedlock may be false. Furthermore, many Sickle Cell Disease (SCD) subjects had sexual problems such as lack of libido, weak or absent erection, premature ejaculation, factors which would further reduce their chances of paternity.

Thus, unlike women with SCD, their male counterparts are generally subfertile. Ours was the first report of this kind worldwide and within weeks of its publication requests for reprints exceeded 1,000. The results remain a major contribution and are quoted by major textbooks on Sickle Cell Disease today, e.g., "Sergeant Sickle Cell Disease", 1985.

What was the mechanism for the poor sperm values of SCD males? Our subsequent study published in the Post-graduate

Medical Journal under the title "Testicular Dysfunction in Men with Sickle Cell Disease", "Osegbe, Akinyanju", 1987, provided the answer. In SCD, the red blood corpuscles are deformed, and these bunch up together and blocked tiny blood vessels of the testis, and therefore prevent the testis from getting its nutrition and oxygen. The consequent malfunction of the testis, results in low sperm production.

We recommend genetic counselling to all Nigerians, educating them on the risk to themselves, their fertility potential and the hazards that their children would be exposed to as a result of Sickle Cell Disease.

SICKLE CELLS AND ERECTILE DYSFUNCTION

Not only does Sickle Cell Disease reduce the chances of fertility, through diminished sperm quality, it also interferes with normal penile erection. Indeed in our practice at the Lagos University Teaching Hospital, 60% of an illness called "Priapism" is caused by SCD. In this illness, the penis, without any provocation, as in the desire to urinate or make love, erects itself, remains erect continuously for hours, sometimes days or weeks without "falling". The penis becomes painful and the patient rolls about in agony.

Without prompt and adequate treatment (within a few hours of onset), the penis ultimately "gives up" and may never rise again - impotence. Here is a - 24 years old SCD patient with priapism. We saw him about a week after the onset of the lesion. He was prevented from seeing us early by his General Practitioner. Although, the priapism was quickly reduced by a 5-minute interventional procedure, the harm may have already been done. He will very likely not know again what penile erection is and for him fertility may be out of the question for all times.

Priapism, happily often does not pursue an unrelentlessly malignant course. Many start and abort within minutes like a stammerer. We appeal to all male sicklers, their parents and friends to remember this presentation and to alert any one with painful persistent erection that has no purpose, to seek a Urologist immediately. Sickle Cell Disease apart, priapism may be induced by a protean of causes. But the most embarrassing is the one that occurs with no apparent cause - *idiopathic*. For example, an innocent pastor patient of mine, afflicted by priapism had confessed to adultery before his wife and his church management because a "doctor" had diagnosed infidelity as his offence and prescribed

confession and herbs as therapy. When these did not work, he sought our help. After his penis recovered with surgery, he retracted his false confession. His wife was hardly ever convinced by our scientific explanation. You must have heard of such cases or perhaps something more bizarre.

VARICOCELE

Varicocele is a lesion in the blood vessels (veins) that drains the testis. Here the vein that drain blood from the testis are dilated and function inadequately and bizarre sperm cells, low in quality, and mobility are gradually formed and fertility is lost over time. The first report on varicocele in Nigerians appeared in a journal called "Infertility" in 1979. It was from a group of Gynaecologists, Chukwudebelu *et al*, Enugu, following a retrospective study of only 55 infertile men. They held that varicocele was uncommon in Nigerians. How wrong! Our study on 504 infertile men, prospectively and properly examined, revealed that on the contrary, it was the commonest causes of male infertility in us at 28.8% level. It must be stressed that to diagnose varicocele, one must learn and understand the technique of diagnosing it, otherwise misdiagnosis is possible in 100% of cases. The incidence of varicocele in Nigerians is comparable to those of other nations. Our study again, helped to provide the correct data. Infertility arising from varicocele is reversible in good hands and our pregnancy rate after surgery is about 74%. Elsewhere, 80% pregnancy rate has been reported. One must caution that in untrained hands, "varicocelectomy" may worsen the infertility status.

A very few clinicians especially from Australia, deny the role of varicocele in the production of depressed sperm profiles. In 1988, I reported a case-control, longitudinal prospective study of 10 years on a young Nigerian technician with varicocele. Osegbe, 1988: "Varicocele with normal semen: 10 years follow up". Over time, he was converted from fertile to infertile man.

VARICOCELE: MECHANISM OF ACTION?

We do not know how varicocele induces depressed sperm values. Numerous theories exist but none is fool-proof. Fertility in the male is controlled by a complex mechanism which involves the brain (hypothalamus, and pituitary) and the testes. Signals from the brain reach the testis in boluses or pulses and not continuously, as we had earlier believed. Evidence exists that absent and or low pulse frequency of these signals is associated in fe-

males with infertility and miscarriages. Could this be the mechanism through which varicocele adversely affect sperm production and its quality? I designed a study to test this hypothesis in 1988.

Ethicon of Edinburgh, via the West African College of Surgeons, provided me a grant which supported "A study on the pulse pattern of LH release in varicocele patients". The result of the study was published in *Andrologia* in 1989:- Osegbe, "Pulse Pattern of Luteinizing Hormone (LH) in patients with varicocele". The conclusion was that the pattern of release of LH was normal in varicocele patients and was therefore not responsible for low fertility in such patients.

INFECTION AND MALE INFERTILITY

Pelvic infection in women by gonococcal organisms, produces pus, and matted organs including uterus, fallopian tubes, and ovaries. The fallopian tubes get blocked in the process; ovulation is impaired and infertility results.

In males, the role of infection was not clear. Indeed publication by giants in fertility, like Dubin and Amelar (1971), in their catalogue of the causes of male infertility did not include infection.

We took advantage of the endemic nature of gonococcal urethritis in our young adults. I observed that the testis got involved by ascending infection from the urethra, producing inflammation of the testis and its connecting pipe, the epididymis. I then commenced a longitudinal study in which the patients were followed from inception of gonorrheal infection of the urethra to that of testis with serial estimation of the sperm characteristics, pus cell density and later histological examination of the testicular tissue. The results which were published in the European Urology are detailed in Osegbe: "Testicular Function after Unilateral Bacterial Epididymo-Orchitis. European Urology", 1991.

In summary, gonococcal infection of the lower urinary tube, the urethra, ascended upwards, attacked and destroyed the testis and produced low sperm density. Timely, adequated and appropriate medical intervention aborted the loss of testis. Regrettably, the outcome was dismal in 60%. The study showed that without question, bacterial gonococcal infection may result in permanent testis loss and without question may result in male-related barrenness. No previous study had so vividly established this causal relationship between infection of the testis and infertility. The editor, Professor C.C. Schulman of Brussels accepted the article with

thanks and published it unedited within a few weeks of its submission. Professor Gillenwater, requested permission to include the results in the Urology Year Book of that year.

TWISTED TESTIS AND FERTILITY

Torsion, a disease of children and adolescents in Europe and North America, had made waves in the sixties and early seventies. Here, the testis, apropos of nothing and at such moments as love making, sports, climbing into a bus or walking to the classroom, develops agonising pain, followed by swelling, retching and vomiting. Before long, the testis goes blue or black and intertility results.

In Africa in general and Nigeria in particular, the disease remained unrecognised and was hardly taught in medical schools. Painful testis was treated as infection. It soon however, dawned on us that a lot of these patients had no business harbouring infection in their testes and besides, the "out of the blues" presentation was unlike infective process.

We started to explore these testes. Many of the testes had strangulated themselves like a man hanging himself. The twisted testis became blue, or black, then swollen and later swivelled off - a missing testis resulted and if the absence is discovered suddenly by its owner e.g. in a market place, a passer-by may be accused to have miraculously conjured away the testis and lynching occurred - a phenomenon styled "GBOMOGBOMO" in Lagos. We raised alarm:-

- (a) Osegbe and Amaku: "Torsion of Testis in Nigeria" *Afr. J. Med. Sci.* 1981.
- (b) Osegbe: "Testicular Torsion in a Hot Country", *New Eng. J. Med.* 1988.
- (c) Osegbe, Ogunkua, Mogoha: "Testicular Torsion rate in Nigerians. *Trop. and Geog. Med.* 1987.

The results of 10 years of continued study of Torsion in Nigerians are summarised in the following not for the published version.

We commenced mass education of medical doctors, medical students, and consultants, through hospital grand rounds, seminars, repeated examination questions, conferences, etc., to promote awareness, counsel urgent referral by GPS and quick surgery by surgeons.

Our studies and publications paid off. First, the number of authenticated cases increased in Lagos, in Nigeria and in West

Africa both Anglophone and Francophone countries. Second, the salvage rate of twisted testis improved. Thirdly and most importantly, the world heard our message. The Editor of Medicine Digest, not only commissioned me to write an article on the subject, he also paid me a handsome fee and wrote an editorial on me and my work.

The commissioned word was published in his journal as the leading article in July 1989 captioned "TESTICULAR TORSION." The summary carried a sub-title: "THINK TORSION AND SAVE THE TESTIS."

Even to this day I direct that my residents, if need be, must call me out at night to undo a twisted testis. Such is my passion for twisted testes.

CRYPTORCHIDISM AND INFERTILITY

The male gonad, the testis, was formed at the onset near the kidney, high up in the posterior wall of the abdomen. It is very sensitive to raised temperature. In order to cool itself, and to prevent damage from the heat of the body, nature translocated it to the scrotum, where it is housed in a purse-like sac called the scrotum. Here the normal process of sperm production is carried out.

At times, nature fails to do its work properly and the testis fails to be located in the scrotum, but rather gets arrested along its paths. Such patients are born with empty scrotal sacs and mothers are the first to notice and complain. Left entrapped in the abdomen, the testis fails to develop and grow and its production line slows down or shuts off completely. Such patients end up in adult life unable to father children.

Sad story! This sad tale may be remedied by assisting nature to house the testis in the scrotum through an operative procedure called orchidopexy, a difficult term for the translocation of the testis from its abnormal position to the scrotum. Children with absent testes become object of ridicule in class or at play. They learn to avoid playmates and may developed psychological problems. It is mandatory that such testes are relocated early. Later intervention cannot guarantee fertility and besides, psychological derangement may have commenced. We counsel mothers, and doctors at primary health care level to report to the Urologist early. Intervention time should be pre-school, that is, about 4 years, to obtain optimum results.

IMPOTENCE

Failure of erection is common in our people as elsewhere. In some patients, erection was never possible, while in others, it was lost after a while. For some, erection failure is partial, that is, not adequate for successful mating. In others, failure is total with no flicker whatsoever. In some, erection is possible in one situation e.g. with girl friends but not possible with spouse and vice versa, or away from home but not possible at home.

Impotence destroys the man's image or ego, for the patient is not only barren, he is not capable of enjoying a "love-relationship". Suicide is common in these patients and they deserve urgent help. Impotence has been ascribed to such weird causes as witchcraft, curse from the gods or enemy, and infidelity.

What are the causes of impotence in Nigerians? Our study was published locally in 1983 and showed that in Nigerians, impotence was caused by blood vessel disease in 16.7%, nerve related disease in 8%, psychological problems in 16.7%, drug induced in 8%, hormone defect in 17% and a combination of two or more of the above in 33%. This contrasted with the then prevailing thoughts emanating from Western figures where erectile failure was ascribed to psychological causes in over 50%. Present day data from Europe and North America agree with our report. The important message of our study was that organic causes must be diligently searched for in all impotence cases and that the rule of thumb psychotherapy is unlikely to achieve results.

WRONG GENDER LABEL AND INFERTILITY

A male may fail to perform expected role of fecundity because he was assigned a role he could not biologically fulfil. Infertility may result from wrong gender labelling. A truly female child, may, due to abnormal looking genitals at birth be wrongly reared up as male and vice versa. Such persons cannot perform the role expected of them by society. Conception can only occur when a male mates a female.

The story of an 18-year old patient will illustrate this. The patient was born and labelled at birth as female. At 18 years, "her" calf muscles, tempers and composure were unlady-like. She would beat up the mother, smash windows and television sets. She would wrestle successfully with boys in the neighbourhood. No menses was noticed but her breasts were only generous. Worried, the parents sought our help.

On examination, "she" was truly a man with good testicular function but had abnormal looking penis (hypospadias). The parents were informed and requested to consent to reconstructive procedure and relabelling of the gender to male. They refused because another child had been born after "her", and had been recognised by society as the first born male. A psychologist advised against gender change because of possible psychiatric problems later. The patient could not reconcile himself with the idea of coming into hospital as female and going home male. I persisted and his genital and name were righted and his clothes changed. About six months after gender reassignment was done, he walked into the clinic in jeans, gave me a bear hug and requested a photograph with him with smiles and thank you. You can imagine what would have happened if he was married as female in his previous status.

Many of the top class female athletes and footballers belong here, that is, by gender label, they are female but biologically and physiologically, male. The reverse exists too.

TRUE HERMAPHRODITES

Some humans possess both features of the maleness, e.g. penis and testis, as well as those of the femaleness, that is, uterus, vagina, ovaries. They are called true Hermaphrodites. Mythological tales present them as superhumans, capable of fathering and mothering children. In reality, they cannot function either as male nor female. Our methods of managing these patients, were published in 1989, Osegbe, Mordi, Ejiunmi, Ntia: "Hermaphroditism in Older Patients: Problems of Diagnosis and Management", WAMJ 1989.

We advised that proper gender assignment must be done before any new born child is discharged home. In doubtful cases, a Urologist should be invited. Early correction of anomalies gives better results.

URETHRAL STRICTURE AND MALE INFERTILITY

The patient with urethral stricture is a miserable one. He cannot urinate or does so at great pains and agony. He risks death at any moment from hernia, piles, blood infection, kidney failure, and bleeding, which are complications of the disease process. Infertility completes the bag of woes.

Sperm produced by the testes must be transported to the exterior *via* the conduit, called the urethra, in order to fertilise an

ovum. In some men, injury or infection, commonly gonococcus, may block this conduit so that urine and sperm exit is hampered and, of course, urine is retained and infertility may supervene. We have conducted original studies on urethral stricture formation and repair. We have adapted and perfected many techniques used in its repair.

(a) PATHOGENESIS OF GONOCOCCAL URETHRAL STRICTURE: A NEW CONCEPT

The classic picture of a patient with gonococcal stricture was an old man straining to pass urine following a protracted infection contracted many years earlier. Bead and Goodyear in 1948 summed up the prevailing view then when they proposed that for a stricture to occur, urethral infection had to be chronic. Our experience did not fit this old idea.

We see and treat many young patients with strictures and the theory of chronicity was therefore not acceptable to us. We studied gonococcal strictures in young men, aged 20-23 years. Our findings were published in UROLOGY, one of the foremost journals in the field of Urology, in 1981: Osegbe, Amaku (1981): "Gonococcal strictures in young men. Urology, XVIII". In sum, we established that the interval between infection and stricture formation was short. Professor Blandy of the University of London, sent us compliments and promised to incorporate our results in his future write-up on urethral stricture.

(b) ONE-STAGE URETHROPLASTY: AXIAL PENILE SKIN ISLAND FLAP

In the past, Lagos University Teaching Hospital, like many other hospitals, were filled with urethral stricture patients, dragging their urine bags and catheters around the wards and corridors. Such sights have dwindled today, thanks to the improved methods of surgical treatment. In 1983, Professor Quartey of Ghana, used penile skin to reconstruct strictured urethra. It was a very significant contribution. We have modified his technique and used it as our standard method of repair of severe and complicated strictures. Our results were published in 1990 in European Urology. We reported a success rate of 100%. However, it is a time demanding technique requiring 4-6 hours of patience, concentration and attention to details for good result to be achieved. It is rightly named "Quartey's Urethroplasty".

HYPOSPADIAS AND FERTILITY

The external opening of the urethra, the conduit for urine and sperm, is located at the tip of the penis. Urine and sperm are discharged through the opening in a projectile form such that young boys at play often compete to determine whose urine stream hits the roof or leaps over a high fence.

In some children, this external opening from birth is located on the ventral or belly aspect of the penis. During urination, the urine splashes on their thighs or trousers and in extreme cases the patient must squat to urinate. Worse still, when they grow up, they cannot emit sperm forcefully enough for the latter to reach its destination in the vagina. In bad cases, the semen is split on the floor and conception cannot be achieved.

To correct this anomaly, the meatus or opening, must be advanced to the tip of the penis, a very challenging task indeed. At my last count, over 200 different methods, designed to achieve this, have been described, an eloquent testimony that none was good enough. Failure rate is high and comesis may be horrible.

We adapted the skin flap technique used by Quartey in the repair of urethral strictures in adult, already mentioned earlier, and used it for the repair of hypospadias in children. We were so thrilled with the outcome that we reported our first 16 cases in 1988: Ntia, Osegbe, Amaku: "One stage penile cutaneous island flap repair," *European Urology*, 1988. Our success was excellent, with no failures; and the complications were low. It has become the treatment of choice for severe cases of hypospadias in expert hands. Even though Quartey did not describe this technique in children, our contribution has been enveloped by his pioneering description of this graft technique. He deserves it.

EMPIRICAL HORMONE THERAPY FOR MALE INFERTILITY

In spite of our reports that hormones played very insignificant role in the causation of barrenness in Nigerian men, we continue to receive patients who earlier had ingested or injected large quantities of pituitary or testis hormones, often prescribed by the GP, charlatans or friends, without serious thoughts or evidence that they could do any good. These preparations apart from high cost, may damage the testes.

To test if such patients stood any chance of benefitting from such blunder-buss therapy, I recruited between 1980-1983, 250 infertile men, who at one time or the other had taken these hormones. I investigated their hormonal status by measuring their blood levels of pituitary and testicular hormones. The actual estimation was performed by an independent laboratory, in order to exclude personal bias.

COMMENTS

- (a) FSH excess was found in 33%, further elevation was in fact dangerous.
- (b) FSH was low in 7% but only in one patient, that is, 0.4%, was it truly deficient.
- (c) We concluded that empirical hormone treatment is not beneficial and should therefore be condemned. It is expensive, potentially harmful and could cause error in diagnoses.

FERTILITY AFTER SCLEROTHERAPY FOR HYDROCELE

Abnormal fluid accumulation in the scrotum causes the latter to swell and makes walking uncomfortable. The surgical treatment for this is excision. Excision is often complicated by bleeding, infection and it may reoccur. An alternate method of treatment is to aspirate the fluid and replace same with sclerosing agents.

In this case, the procedure is simple, cheap and requires neither hospital admission nor much skill. It is therefore very attractive to patients and surgeons. The possible damage to the testis by this techniques was however, never considered by any one. In a study, that used 27 male subjects, I confirmed the high efficacy rate of sclerotherapy. When however, the semen profiles of the patients before and after treatment were assayed, I found that sclerotherapy converted the subjects to a subfertile population.

A case was made for caution in the use of sclerotherapy and this was published in the *Lancet*, 1991: Osegbe: "Fertility after sclerotherapy for hydrocele," *Lancet* 337, 172. "Urology Times" of North America, quickly asked for, and obtained permission to reproduce the publication the same year.

ARTIFICIAL INSEMINATION FOR THE INFERTILE COUPLE

Conception can be achieved by artificially introduced sperms into a woman, that is, without mating. This is called

Artificial Insemination. This can be achieved using the husband's sperms (AIH), in rare cases or by using donated sperms (AID), which is most common. The actual technique is very simple and is therefore prone to abuses. Meticulous matching for colour and height, thorough screening for HIV and Genotype are mandatory.

In truth, the absolute indication for AID is irreversible testicular loss, that is, when the testis is permanently dead. Only a Urologist can pronounce a male's fertility loss irreversible. The reason is simple. The absence of sperms from a man's semen (azoozpermia) or a low concentration, may be caused by a correctable disease. Only a qualified Urologist is adequately trained to detect and correct such ailments. Because of the high susceptibility of artificial insemination to abuse, its practice is highly controlled in the developed world. First, the guidelines for its application are rigorous and stringent and are backed up by legislation. In Nigeria, there are yet no such guidelines and no law regulates its practice. It is a fertile ground for the less upright in morals. This informs my repeated acid reactions and comments at whatever fora this subject is discussed in our environment. Its practice must be regulated and a Urologist must provide an informed opinion as to its desirability in any couple.

DECLINING SPERM CONCENTRATION?

As far back as 1986, we had reported, like authors from Europe and North America, that the present sperm counts, when compared with those of authors of 30 years ago, had diminished. Our report was not noticed by the local press. I was therefore surprised when about the middle of 1997, alarming headlines and reports appeared in our local press claiming that fertility in men was rapidly on the decline. The media reports suggested that in no distant future, fertile men would have disappeared from the face of the earth. I want to assure you all, ladies and gentlemen, that there is no such threat.

What are the facts? The Reproductive Council of the American Association of Tissue Banks requires that a prospective sperm donor must have a minimum sperm concentration of 75 million/ml. In 1974, a group of American researchers observed that the percentage of men with large sperm count or polyzoospermia, that is > 200 million/ml were less than before. They thought that the environment was to blame. About

7 years later (1981) another group observed that the sperm densities amongst sperm donors were no longer of the high grade >200 million/ml. This group projected that in less than 10 years, there would be no single male qualified to donate sperm, if the 75 million/ml rule is adhered to. It did not happen. We still do have sperm donors.

However, we wondered then whether these changes occurred in Nigerians. Since we do not have sperm banks in Nigeria, we enlisted and studied Nigerian males who satisfied the following criteria: (a) Young, (b) Healthy, (c) Wife, currently pregnant, (d) Provide at least 2 semen samples after coital abstinence of 3-5 days, (e) Provide specimens by masturbation. We studied their sperm characteristics.

Our results were published in 1986: Osegbe, Amaku, Nnatu: "Are Changing Sperm Parameters a Universal Phenomenon,?" European Urology. It showed that our mean sperm count was similar to those of other races determined in the last 10 years. When compared with counts performed 30 years earlier, our results like those of others elsewhere, were much lower.

It also revealed that sperm count greater than 60 million/ml was now uncommon. In fact, men with large stores of sperms, that is, >200 million/ml (polyzoospermia), accounted for less than 3%. We were surprised that 34% of our fertile men produced semen whose density was less than 20 million/ml, the limit generally accepted as demarcating the fertile from the subfertile.

What has changed? Method of sperm estimation? Yes! Was the change significant? Yes! Mathematically so! Was it real? The methods of estimation of sperm counts have improved in the last three decades. Indeed, in most laboratories abroad, sperm evaluation is done by automation, removing human errors inherent in manual counts. It is possible that the sperm density of the past were bloated by human errors.

Yes, men with large stores of sperms have declined but we do not require them for fertility. There shall continue to be enough fertile men to ensure that we continue to populate the earth.

WHO IS THE INFERTILE MALE?

We have an idea what sperm concentrations would make for optimum chances of fertility. We however, do not know what the lowest limit is. Therefore, as long as there is a sperm

cell present in any man's semen, he cannot be counted out in any dispute of paternity.

So, we set out to establish the cut-off point between the fertile and infertile sperm density. We selected 596 truly infertile men and estimated their sperm counts and compared them with those of supposedly infertile men.

The study data were published in 1987: Osegbe, Amaku: "Semen Features of 596 Truly Infertile Men." *European Urology*. Our study showed that a sperm density of 10 million/ml, total sperm per ejaculate of 25 million, motility of 40%, morphology above 40% separated fertile from infertile men. These were lower than earlier reports suggested. A recent study elsewhere compared sperm values with pregnancy rate and arrived at the same conclusion, that is, that a sperm count of 10 million/ml, sieved off fertile men from infertile ones.

URINARY STONE DISEASE

It was recognised for long that stones of the urinary tract (kidney, ureter, bladder and urethra) were very rare in indigenous Africans living in their primitive environment and consuming their unrefined diet. Urinary stone was hardly emphasized in our population. Indeed, medical texts in these parts only made passing reference to it.

In 1974, then a senior house surgeon, I ran into a surprise. A young man (24 years) had been diagnosed by my seniors as suffering from urethral stricture and as was the custom then, he was put on regular urethral dilatation (bouginage) of the stricture. On that day, the procedure failed and I had to open the bladder to divert his urine. Behold, the bladder contained a very large stone (giant) and I had to call for help in order to heave the stone from the bladder to the surface.

It turned out that the young man did not have urethral stricture as he was labelled and treated for years but that a stone had blocked the exit of urine from the bladder. This formed the first report of a giant stone from our centre. Dr. Esho, who later became Professor Esho in this University, soon joined our team from North America and in a study which included dead bodies, he confirmed that urinary stones were rare in Nigerians.

About a decade and half later, I discovered that the story had changed. Urinary stone is no longer uncommon. I observed that many stones were being missed by doctors because they

were earlier taught that the disease was rare. I raised an alarm and called for a change in the old teaching. The result of our study was quickly published in the glamorous Christmas issue of the *British Medical Journal* in 1987, under a heading reminiscent of the cry of John the Baptist - "THE RISE IN UROLITHIASIS IN NIGERIANS."

The study noted that the dramatic rise of stone in us had come as a result of the change in the dietary life style of Nigerians. Instead of eating our protective so called primitive diet of crudely processed cassava, vegetables, unrefined sugar, and heavy fibres, we had recently acquired taste for polished rice, refined sugars, bread and machine processed garri and flour. Professor Dennis Burkitt of London, a leading epidemiologist of our time, famous for his work on lymphomas, which work he did in Africa and for which he has been immortalised, wrote to congratulate me on the study. Further results of our continued interest and study of urinary stones were recently published in the *Nigerian Surgical Journal*, 1994, because it was aimed at the local practitioners of the profession.

PROSTATE CANCER

Prostate cancer is now recognised as a global disease but its incidence is highest amongst American blacks and moderate in Europeans. Nigeria, indeed the entire black Africa is categorised as a low risk zone for prostate cancer. The incidences of the cancer for Africa and Nigeria are repeatedly quoted as 4-10/100,000 and 10/100,000, respectively, whereas that of Afro-Americans is 100/100,000. A group of American scientists came to UCH Ibadan for a short period to study prostate cancer and before we all knew it, they reported that the low incidence of this cancer in Nigerians was owing to low androgen level - the hormone that drives sexual performance, in Nigerian males. Yet it is common knowledge that the Nigerian male is very virile and is very much sought after in Europe and North America.

Not convinced of the merit of this hypothesis, Ogunlewe and I, studied the levels of this hormone in Nigerians and found that they were the same as those from Europe and North America. Our paper, Osegbe, Ogunlewe: "Androgen concentration in Blacks with Benign and Malignant Prostatic Disease", was published in the *Journal of Urology* in 1988. No! Androgen level did not protect us from prostate cancer.

A second report suggested that two trace metals, Zinc and Cadmium, were contributory to prostate cancer in the industrialised nations. If this was true, we reasoned that these metals should be low in us, because we were yet poorly industrialised. Again, if this was true it may explain our protection from prostate cancer. We set out to find out.

Again, we studied these trace metals in Nigerians. And yet again we found that the trace metals occurred in the same levels as in other races: Ogunlewe, Osegbe: "Zinc and Cadmium Concentration in Indigenous Blacks with Normal Hyperthrophic and Malignant Prostate," *CANCER*, 1989.

After all these initial investigations we commenced a prospective study of this cancer in 1988 and after the first five years, the results we obtained shocked us. We found that prostate cancer was common in Nigerians and in fact that its incidence in Nigerians closely resembled those of African-Americans. We became very restless and brought this information to whoever cared to listen. Thus, we took our data to Australia, Societe Internationale Urologie (SIU), 1994; Kenya, Pan African Urological Surgeons Association (PAUSA), 1995, Senegal, West African College of Surgeons (WACS), 1997; Montreal, Canada (SIU), 1997. Our latest report was published in the "Journal of Urology," the world's foremost journal of Urology: Osegbe. "Prostate Cancer in Nigerians: Facts and Non-Facts," 1997.

Already, reactions from the Urology world: Cameroon, Nigeria, Ghana, Senegal, East Africa, North America, Europe, and Asia, have been overwhelming. Our contribution has received commendation for setting the records aright for black Africa and perhaps for pointing the way towards solving the question of its aetiology. Today, we diagnose at Lagos University Teaching Hospital on average two new cases per week. Unfortunately, they reach us at the advanced stage of the disease and the quality of life as well as survival periods are short. Only one third of our patients live to see three birthdays from diagnosis of this cancer.

ETIOLOGY OF PROSTATE CANCER

Having discovered that the cancer is common in us, the next task is to identify its cause(s). Some of the offshoots of our study are:-

- (a) That Afro-Americans are our brothers in diaspora:

the similarity of our present prostate cancer incidence rate with theirs may suggest a common genetic predisposition. We have suggested this at the conference of Urologists in Kenya, 1995, and Montreal, Canada, 1997.

- (b) We also found that it has a strong family connection; we have seen many cases in close relatives e.g. brothers, sons, fathers, cousins, etc.

- (c) We have started to stimulate co-operative studies with Ibadan, Newi, Kenya, Ghana, Senegal, USA. Regrettably funds have been a major constraint. The opportunity for a Nobel Prize is knocking at our doors.

POLICY STATEMENT

We have enough data from our study and those of other workers to make the following statements concerning early diagnosis.

- (1) All males above 50 years should undergo mandatory Digital Rectal Examination (DRE) in search of this cancer at least once per year plus Prostate-Specific-Antigen (PSA) estimation.
- (2) All males above 40 years with any history of prostate cancer in a close relative should have DRE and PSA once per year.
- (3) All males above 50 years with low back pain should have DRE and PSA.

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The innocent, occasionally down right silly questions by medical students provided stimuli to discover alternative and simpler methods of doing things.

The respect we received from fellow colleagues in the College of Medicine and outside, kept us on our toes to always strive to remain on top.

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REFERENCES

1. Ntia, U.P., Kufuji, L.I.D., Amaku, E.O. (1979). The investigation of the infertile male. *Nig. Med. Jour.* 5:322.
2. Osegbe, D.N., Amaku, E.O. (1985). The Causes of Male Infertility in 504 Consecutive Nigerian Patients. *International Urology and Nephrology*. 17: 349.
3. Osegbe, D.N., Akinyanju, O., Amaku, E.O. (1981). Fertility in males with Sick Cell. *LANCET*: 275.
4. Osegbe, D.N. Akinyanju, O. (1987). Testicular Dysfunction in Men with Sick Cell Disease. *Postgrad. Med. Journal*, 63: 95.
5. Chukwudebelu, W.O., Esege, N., Megafu, U. (1979). Aetiological factors in infertility in Enugu, Nigeria. *Infertility*. 2: 913.
6. Osegbe, D.N. (1988). Varicocele patient with normal semen: 10 years follow-up. *Nig. Med. Jour.*
7. Osegbe, D.N. (1988). Pulse Pattern of Luteinizing Hormone (LH) in Patients with Varicocele: A Preliminary Report. *ANDROLOGIA*. 21: 23.
8. Osegbe, D.N. (1991). Testicular function after Unilateral Bacterial Epididymorchitis. *European Urology*. 19:204.
9. Osegbe, D.N., Amaku, E.O. (1981). Torsion of testis in Nigerians. *Afr. J. Med. Sci.* 13: 75.
10. Osegbe, D.N., Ogunkua, A., Mogoha, G. (1988). Testicular Torsion Rate in Nigerians. *Trop. Geogr. Med.* 39: 372.
11. Osegbe, D.N. (1988). Testicular Torsion in a hot country. *New England Journal of Medicine*, 318: 1129.
12. Osegbe, D.N. (1989). Testicular Torsion. *Medicine Digest*, 3:1.
13. Osegbe, D.N., Mordi, V.P.N., Ejiwunmi, A. Ntia, I.V. (1989). True hermaphroditism in old patients: Problems of diagnosis and management *West Afr. J. Med.* 8:66.
14. Beard, B.E. Goodyear, W.E. (1948). Urethral stricture - a pathological study. *J. Urol.* 59: 619.
15. Osegbe, D.N., Amaku, E.O. (1981). Gonococcal Stricture in Young Adults. *Urology*, XVIII: 37.

16. Osegbe, D.N., Ntia, I.U. (1989). One-stage urethroplasty for complicated urethral strictures using axial penile skin island flap. *European Urology*. 17:79.
17. Osegbe, D.N., Arogundade, R.A. (1994). Changing pattern of urethral stricture in Nigerians. *Nig. Postgrad. Medical Journal* 1:1.
18. Ntia, I.U., Osegbe, D.N., Amaku, E.O. (1988). One-stage penile cutaneous island flap repair for hypospadias in circumcised patients. *European Urology*. 14: 450.
19. Osegbe, D.N. (1989). Empirical Gonadotrophin therapy for male infertility: Cost benefit. *Nig. Quart J. Hosp. Med.* 4:13.
20. Osegbe, D.N. (1991). Fertility after sclerotherapy for hydrocele. *LANCET*: 337: 172.
21. Osegbe, D.N., Amaku, E.O., Nnatu, S.N. (1986). Are changing semen parameters a universal phenomenon? *European Urology*, 12: 164.
22. Osegbe, D.N., Amaku, E.O., (1987). The semen features of 596 truly infertile men. *European Urology*. 13: 169.
23. Owoseni, A.A., Osegbe, D.N., Amaku, E.O. (1978). Vesical Calculus: A surprise operative finding. *Nig. Med. J.* 8: 64.
24. Osegbe, D.N. (1988). The rise of urolithiasis in Nigeria. *British Medical Journal*. 295: 1654.
25. Osegbe, D.N. (1994). Urolithiasis in urbanised Nigeria. *Nig. J. Surg.*
26. Ogunleye, J.O., Osegbe, D.N. (1989). Zinc and Cadmium concentrations in indigenous blacks with normal hypertrophic and malignant prostate. *Cancer*. 63:144.
27. Osegbe, D.N. Ogunleye, J.O. (1988). Androgen concentrations in blacks with benign and malignant prostatic disease. *J. Urology*. 140: 160.
28. Osegbe, D.N., (1997). Postate cancer in Nigerians: Facts and Non-Fact. *J. Urol.*

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