THE ART AND SCIENCE OF SURGERY IN AN ACADEMIC SETTING

BY

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THE ART AND SCIENCE OF SURGERY IN AN ACADEMIC SETTING

Mr. Vice-Chancellor Sir, Deputy Vice-Chancellor (Administration), Deputy Vice-Chancellor (Academic), Provost, College of Medicine, Deans, Acting Registrar, University of Lagos, Fellow Professors, my Lords Spiritual and Temporal, Your Excellency Fellow Colleagues, Distinguished Guests, Ladies and Gentlemen.

I wish to express my profound gratitude to the Vice-Chancellor, Professor Omotola and the entire University community for affording me the opportunity to deliver this inaugural lecture. This is a singularly unique honour.

Indeed, I have been given this opportunity, not by going with a cap in hand, but given with pleasure and spontaneous invitation. Since I am a debtor, I have owed this University an inaugural lecture for 17 years since my appointment to the Chair of Surgery in 1979. A newly appointed Professor is expected to deliver an Inaugural Lecture soon after his appointment. That great English Poet, William Shakespeare in *Merchant of Venice* says "neither a borrower nor a lender be". I am here before you today to liquidate my debt.

At the same time, contrary to Shakespearean admonition, I would like to lend by sharing with this august audience the subject of ***The Art and Science of Surgery in an academic Environment***.

At this very early stage of my lecture, I wish to thoroughly acknowledge straightaway, the tremendous encouragement and contributions which I have received over the years. In performing the acknowledgment exercise, my role is not to write my autobiography for such a preposterous action will attract the immediate sanction of the Vice-Chancellor, and he will say "order", and I shall be thrown out before your eyes!

I started my professional career as a humble House Officer (the most junior cadre of medical officers) in 1964 at my undergraduate teaching hospital - the Royal Victoria Infirmary, Newcastle, England. There I worked as a House Officer, first in the Professorial Unit in Medicine under Professor George Smart and subsequently as a House Surgeon to Mr. J.D.T. Jones and Mr. Brian McEvedy, the son of the famous McEvedy known for his incision for *femoral hernia*. I wish to pay a great tribute to these great men.

My postgraduate career commenced here in the Lagos University Teaching Hospital in 1965 in the Accident and Emergency Unit of the hospital, the gateway to the hospital. I joined the company of the academic surgeons proper in 1971 when I was appointed Lecturer and Consultant Surgeon at the College of Medicine, University of Lagos, and Lagos University Teaching Hospital, respectively. The time is opportune to pay glowing tribute to my senior colleagues, Chiefs and collaborators in the Department of Surgery, College of Medicine, University of Lagos where we had a conglomeration of the most distinguished academic surgeons in our West African Sub-Region, and indeed in Africa. Professor H. Oritshejolomi Thomas, that illustrious surgeon, employed me when he held the triple portfolios of Head of Surgery Department, Dean of the Medical School, and Chairman, LUTH Management Board, but according to Dr. Majekodunmi's booklet he refused bluntly to wear the fourth cap when Dr. Majekodunmi (the then Honourable Minister of Health) suggested to him to be the Vice-Chancellor. "No" he says "I'd rather stay and develop the Medical School that we have planned", Professor A.O. Adesola; Professor E.A Elebute and Professor P. Omo-Dare played a major role in my career and training as a surgeon. Such other professor was Professor Welbourn of Royal Postgraduate Medical School,

Hammersmith, London. During my stay in Rochester, New York as a postgraduate doctoral fellow, Professor Charles Rob and Professor Symour Schwartz of the University of Rochester Medical Centre, New York, were of tremendous assistance. Professor Harry Segal of Lagos and Rochester was the brain and Coordinator of the American Commonwealth Post-doctoral Fellowship. He is no more; may his soul rest in peace - *Requiscat in peace*. He and his wife Evelyn Buff Segal expressed to me in a pragmatic manner their unique hospitality and indeed to those Nigerians who passed through the Commonwealth Fellowship.

In the book *Alice Adventures in Wonderland* by Lewis Carol, Alice asked what is the use of the book without pictures? I ask what is the use of a Lecture without pictures and photographs.

According to that pious and brilliant cardinal of the Catholic Church, Cardinal Newman "the ordinary objective of lectures is to teach". It will be out of place and absolutely presumptive for me to teach this august audience present here this evening.

Mr. Vice-Chancellor, Surgery is defined according to Stedman's *Medical Dictionary* as "the branch of Medicine that is concerned with or treatment of diseases or injuries by operation or manipulation. A surgeon is described as an operating physician. He is known to have "the heart of a lion, the eyes of an eagle, and the hands of a lady". Such is the picture of a courageous operating physician with penetrating eyes, surgical precision, incisive and decisive and yet, he treats his patients, human tissues and organs with respect, gentility and finesse.

God, powerful and glorious, performed the first surgery ever recorded, and the Book of Genesis, Chapter 2 Verses 18 - 24 told us, and I read: *The Lord said "It is not good that the man should be alone. I will make him a helpmate". But no helpmate suitable for man was found for him so the Lord made the man fall into a deep sleep. And while he slept. He took one of his ribs and enclosed it in flesh. The Lord God built the rib He had taken from the man into a woman, and brought her to the man. The man exclaimed. "This at least is bone from bones, and*

flesh from flesh! This is to be called woman, for this was taken from man".

What I propose to do in this lecture is to share with you the following:

1. Historical perspectives of the development of the Act and Science of Surgery.

2. My special areas of interest in surgery, of course highlighting my own humble contribution to the expansion of the frontiers of medical knowledge which I humbly profess as a professor.

3. Finally, I will dwell on Medical Education and Medical Administration

HISTORICAL PERSPECTIVES OF THE DEVELOPMENT OF THE ART AND SCIENCE OF SURGERY

Surgery as an *art* alone, was practised from the new stone age (1000 BC - 2000 BC). This fact was known from Archeological studies. The evidence for this was from skulls excavated by Archeologists who discovered fine-holes in the skulls. The holes in the skulls were created in the living. In view of the magical beliefs that many ailments were due to evil spirits which had entered the body and head. These spirits needed to be driven out of the head (they were performing the operation of TREPHINING or BURR-HOLE) practised by modern Nuerosurgeons after head injuries to let out blood clot. The old stone age and the preceeding ages were drowned in obscurity with regards to Surgery as an art and craft. There is ample historical evidence to prove the existence of the art of surgery alone in ancient Egypt and Mesopotamia. Surgery as an art and science was introduced in ancient Greece adjudged by the outstanding works and enunciations of Greek men of Medical fame *viz*: Hippocrates (the Father of Medicine), Galen and Aristotle. Ancient Rome would seem also to be associated with the practice of the Science and Art of Surgery. This is

exemplified by the works of Celsus (AD 10 - 37). There were specific historical Landmarks which threw more light on the progress of the Art and Science of surgery, particularly on the science aspects. They are namely:

1. The Renaissance in the 15th Century.

2. The Era of the REBIRTH of Science (1500 - 1700)

3. Indeed, the period of reign of Law (1700 - 1825), sometimes called the era of consolidation or new philosophy or new discovery and severance from medieval philosophies and beliefs. This was an era of Verselius, Harvey and John Hunter in Medicine and Surgery, running *pari passu* with the development of Science and engineering led by Sir Isaac Newton and Galileo.

Thus, the resurgence of Science precipitated the foundation of Science in Surgery and contributed tremendously to the Art and Craft of Surgery. The acquisition of the new arnamentarium, i.e. SCIENCE accorded a new respect to the Surgeons in the healing Art.

Prior to 1743 we had the existence of barber surgeons. They were surgeons who were conversant with the art and craft of surgery backwards and forwards without the knowledge of science like the traditional healers of today. Their practice was not guided by scientific reasoning and deductions. This cadre of surgeons were trained by apprenticeship and there was no formal postgraduate education or training. The year 1743 saw the disappearance of the Association of Barber Surgeons of UK from the scene of the practice of surgery. In the post 1743 era there was the thought from surgeons that some kind of education and formal training were required for surgeons in training and under apprenticeship. Thereafter they began to put emphasis on formal training and medical education of surgeons and the birth of medical science in surgery came into being.

The type and extent of surgery at that time was grossly limited by three factors. The incidence of complications before and

after surgery and death rate was very high. The three factors are as follows:

(i) Lack of proper anaesthesia to relieve the patients' pain and to put the patient to sleep during operation;
(ii) Infection; and
(iii) non-availability of blood transfusion.

Hypnosis, magnetism and mesmerism took the order of the day in providing some kind of anaesthesia. It is interesting that in 1828 a professor of Medicine, John Elliston of University College Hospital, London lost his chair of Medicine because he failed to hypnotise a patient for operation. The patient refused to fall asleep or be mesmerized and magnetized. 1845 saw the introduction by Wells of nitrous oxide (laughing gas) as an anaesthetic agent. This agent is still used up till today. In the following year 1846, Ether anaesthesia was ushered into the scene through the discovery of Dr. Morton of Massachusetts General Hospital in U.S.A. Dr. Warren, a surgeon used ether for the first time to perform an operation in which he removed tuberculous lymph nodes of the neck. The year 1847 witnessed the introduction of chloroform anaesthesia into the practice of anaesthesia and surgery.

Thus the introduction of the new anaesthetic agents paved the way in the 20th century to the development of the scope and magnitude of surgical operations.

Infections of wounds and post-operative surgical wounds and all other infective conditions in surgical practice were associated with very high morbidity and mortality. The reasons were because of lack of aseptic techniques, i.e., lack of prevention or contamination by germs of instruments and materials used for operations. As a matter of fact, the typical operating scenario was a public demonstration by the surgeons of their operations in an open hall which was accessible to all and sundry. The scene was that of a surgeon who on a white unsterile coat and operated with bare hands and with unsterilized instruments, clothings and towels. He tucked his ligatures and stitches in the pocket of his white coat. The blind leading the blind!

By 1865 Lister realized and introduced some form of antisepsis and aseptic techniques in the operating theatre by using carbolic acid spray to sterilize surgical wounds, surgical instruments and the theatre. He recognised the presence of germs in the air following the work of Louis Pasteur of Lille in France.

The year 1890 to 1900 saw the era of sterilization of instruments by antisepsis using antiseptic agents and water in the form of steam. By 1985 the use of cotton gloves was introduced by J. Von Mickulicz and Radech. Certainly by 1894 rubber gloves for the surgeons were discovered by Halstead of John Hopkins Hospital, U.S.A.

Lack of antibiotics increased the morbidity and mortality of surgical operations and other surgical diseases that were infective in origin.

The year 1928 witnessed the discovery of penicillin by Fleming but it was Florey who purified penicillin and used it in human-beings. This was a great landmark in the history of Medicine and Surgery and a great revolution in the scope of surgery with regard to the fighting of infection. Domack in 1935 discovered sulphonamides and since then many antibiotics had been discovered up to the present date which have reduced considerably morbidity and mortality resulting from surgery.

The discovery of blood transfusion by Land Steiner of Vienna in 1874 paved the way to improvement in the art and science of surgery. The discovery of x-rays by Roentgen in 1895 provided a useful diagnostic tool in surgical practice.

The Warsof Religion (16th and 17th centuries), World Wars I and II, Korean war and Vietnam war increased our surgical knowledge with regard to causes and management of infection, shock, haemorrhage, and wound care.

These revolutionary historical landmarks prepared the way for the wide scope of modern surgery, created the modern operating theatres and techniques where the rule of asepsis is practised and surgery is made safe. Anaesthesia has been

made safe also. The incidence of infection has been kept to the minimum and blood loss can be corrected by blood transfusion.

PART II

This part will deal with some of my special interests in the art and science of surgery. Of course, I shall discuss some of my own humble efforts to expand the frontiers of medical knowledge in some of the areas which I humbly claim to profess.

Peptic Ulcer

Peptic Ulcer is defined as *a wound or breakdown or loss of continuity of a small area in the lining of the digestive tract usually in the stomach and duodenum.* It occurs in the presence of digestive juice, acid and the enzyme called pepsin.

Gastric ulcer was described before duodenal ulcer. Duodenal ulcer was first described by John Abercombe of Edinburgh in 1828.

Following the early descriptions Moynihan of Leeds, England in 1912 gave an accurate description of duodenal ulcer because he saw this condition with the freshness and clarity of an explorer of a new territory.

About 50 years ago it was thought that peptic ulcer disease was rare in Africans, but we have known for some time now that it is in fact common in Africans including Nigerians.

Following the early descriptions of peptic ulcer, great advances have been recorded in its causation, diagnosis, using barium meal, endoscopy with the flexible endoscopes and gastric secretion tests. Other areas of advancement include the non-operative treatment which spans from the use of antacids, anti-vagal drugs to prescription of modern and potent drugs which suppress gastric acid secretion, i.e. H_2 receptor antagonists such as Tagamet, Zantac, etc., Omeprazole etc., and finally the use of antibiotics and antimicrobial agents (Flagyl, Amoxil and Tetracycline) active against a bacteria called *Helicobacter Pylori* which is now recognised to be a

cause of peptic ulcer. Historically the definitive operative treatment of duodenal ulcer has varied from partial gastrectomy, i.e., removal of the part of the stomach (Warrem and Marshall, 1783), to vagotomy alone (section of the trunk of the vagus nerve) (Lester Dragstedt in 1947); vagotomy and drainage of the stomach (Dragstedt and Woodword, 1951) and finally highly selective vagotomy (Holle and Hart, 1967). The treatment of gastric ulcer is partial gastrectomy which is the removal of part of the stomach The first operation was performed by Von Rydyger in 1882.

What is the cause of peptic ulcer disease? Schwartz in 1910 enunciated a law which states "no acid no ulcer". This dictum sums up the cause of ulcer because it is the interplay between acid secretion and digestion of the lining of the digestive system and the destruction of the lining. Duodenal ulcer is primarily associated with hyperacidity.

Gastric acid secretion tests have been used in the diagnosis of peptic ulcer, the assessment of the effectiveness of operation, rough prediction of complications for peptic ulcer and the diagnosis of the rare disease called Zollinger-Ellison syndrome. Zollinger-Ellison syndrome consists of tumour of the pancreas, hypersecretion of gastrin (a stimulant of acid secretion), increase secretion of acid by the stomach, and development of severe peptic ulcer disease. Also x-ray studies called barium meal and looking into the inside of the stomach through an instrument (endoscope) are important tools in the diagnosis of peptic ulcer.

In the Gastroenterology Unit of the University Department of Surgery, LUTH and College of Medicine, I developed interest in gastric physiology and in gastric acid secretions in Nigerian subjects namely in normal control group, patients with dyspepsia or stomach pain with no ulcer and duodenal ulcer patients. These patients were studied using (a) Augmented Histamine Test where Hestamine - a potent stimulant of acid is injected into the muscle (b) Histamine infusion test where histamine is injected into the veins. Later Pentagastria - a synthetic analogue of gastrin which is secreted in the antral part of the stomach, was used in the Pentagastrin stimulation rest because of its fewer tide effects.

Prior to 1971 such data on gastric acid secretion patterns in Nigerians and in our sub-region were not in the world literature. In collaboration with Professor Adesola and other workers we published our results over a period of time in local and international journals. Briefly, our main results and conclusions are as follows:

i. The basic data were established in Nigerian normal subjects, Non-ulcer, dyspepsia, (indigestion) and duodenal ulcer patients.

ii. The values of stimulated acid output (Maximum Acid Output MAO or Peak Acid Output - PAO) were lower in Nigerians than in their Causasian counterparts) (Table i)

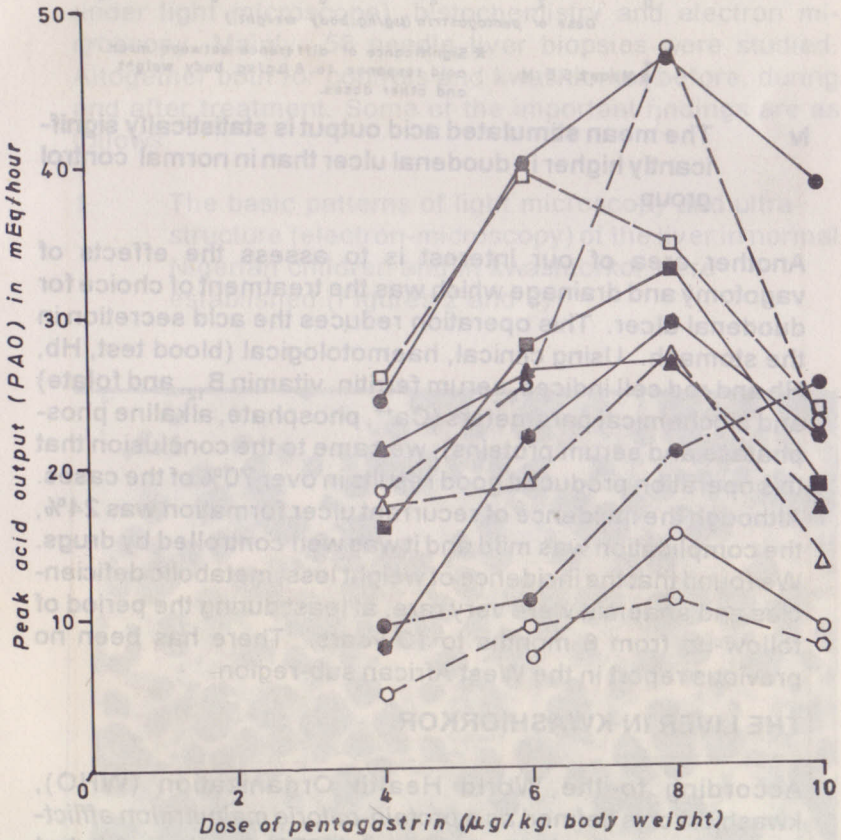
MEAN PEAK ACID OUTPUTS (P.A.O.) FROM VARIOUS CENTRES

CENTRE	METHOD	CONTROL mEq./hr.)	DUODENAL ULCER mEq./hr.
LONDON (Baron, 1963 A)	A.H.T.	21.6	42
SHEFFIELD (Johnston & Jepson, 1967)	PENTAGASTRIN	25.0	43.0
ENGLAND (Wormsley & Grossman, 1965)	HISTALOG	34.4	42.4
U.S.A. (Breuer & Kirsner, 1967)	HISTALOG	21.8	35.0
U.S.A. (Castell et al, 1967)	HISTALOG	21.9	32.5
BOMBAY (Desai et al, 1972)	PENTAGASTRIN	19.3	25.6
BOMBAY (Pimparkar et al, 1976)	PENTAGASTRIN	21.2	27.9
LAGOS, NIGERIA (da Rocha-Afodu & Adesola, 1972)	A.H.T.	16.0	31.0
LAGOS, NIGERIA (da Rocha Afodu & Adesola, 1976)	H.I.T.	18.3	34.6
LAGOS, NIGERIA (da Rocha-Afodu, 1973)	PENTAGASTRIN	18.4	27.0
LAGOS, NIGERIA (da Rocha-Afodu, 1982)	PENTAGASTRIN	24.0	37.2

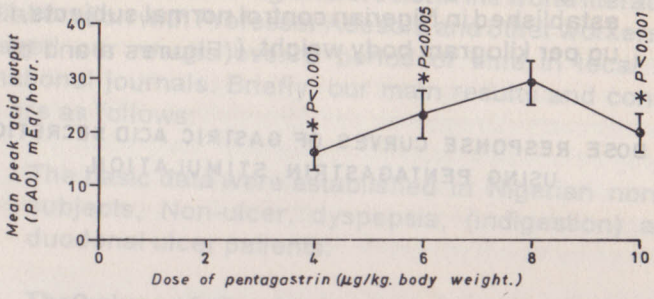
Figure 1 The Results of varying doses of Pentagastrin on Peak Acid Output (PAO).

iii We established that the standard dose of Pentagastrin (6 ug per kilogram body weight) is lower than the dose established in Nigerian control normal subjects, i.e., 8 ug per kilogram body weight. ((Figures a and b)

DOSE RESPONSE CURVES OF GASTRIC ACID SECRETION USING PENTAGASTRIN STIMULATION.



THE RESULT OF VARYING DOSES OF PENTAGASTRIN ON PEAK ACID OUT PUT.



Mean ± S.E.M.

* Significance of difference between mean acid response to 8 µg/kg. body weight and other doses.

iv **The mean stimulated acid output is statistically significantly higher in duodenal ulcer than in normal control group.**

Another area of our interest is to assess the effects of vagotomy and drainage which was the treatment of choice for duodenal ulcer. This operation reduces the acid secretion in the stomach. Using clinical, haemotological (blood test, Hb, Hb and red cell indices, serum ferritin, vitamin B_{12}, and folate) and biochemical parameters (Ca^{++}, phosphate, alkaline phosphatase and serum proteins), we came to the conclusion that this operation produced good results in over 70% of the cases. Although the incidence of recurrent ulcer formation was 24%, the complication was mild and it was well controlled by drugs. We found that the incidence of weight loss, metabolic deficiencies and anaemia were very rare, at least during the period of follow-up from 6 months to 10 years. There has been no previous report in the West African sub-region.

THE LIVER IN KWASHIORKOR

According to the World Health Organization (WHO), kwashiorkor is defined *as a protein-calorie malnutrition afflicting children*. In the WHO monograph (1952) Brocke and Autret described it as follows: *"It is the most serious and widespread nutritional disorder known to the medical and nutritional science"*. This disease was first described in the Gold Coast (now Ghana) by Williams in 1933.

The question of whether the liver in kwashiorkor suffers permanent structural or functional damage after (a) fat infiltration even after treatment as to render the liver susceptible to further damage by continuing malnutrition or submalnutrition (b) cirrhogenic agents, e.g., hepatitis virus, alcoholic injury, and (c) carcinogenic agents, e.g., Aflatoxin, has not been fully resolved.

To answer these questions, I studied the livers in kwashiorkor using biochemistry (liver function tests), histology (examina- under light microscope), histochemistry and electron microscopy. Mainly 58 needle liver biopsies were studied. Altogether both for controls and kwashiorkor before, during and after treatment. Some of the important findings are as follows:

1. The basic patterns of light microscopy and ultrastructure (electron-microscopy) of the liver in normal Nigerian children and in kwashiorkor were established.(Figures 2 and 3)

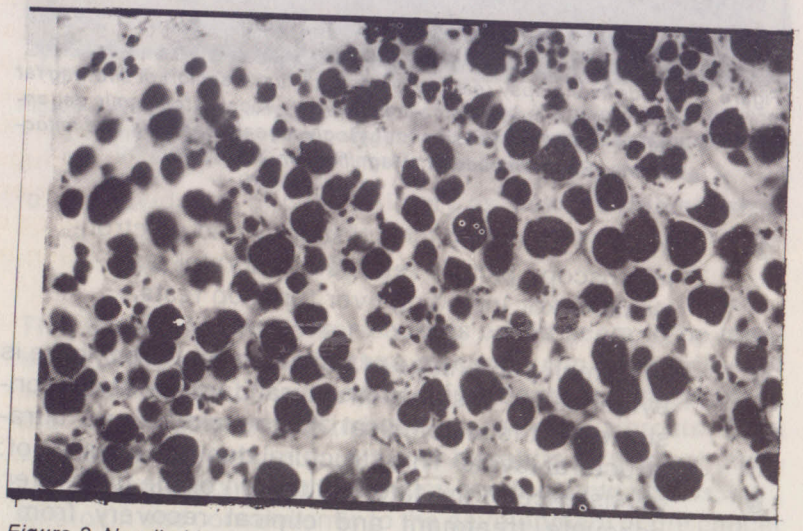


Figure 2 Needle biopsy of the Liver (Light Microscopy) in Kwashiorkor Showing fat globules. Osmic Acid Stain X 200.

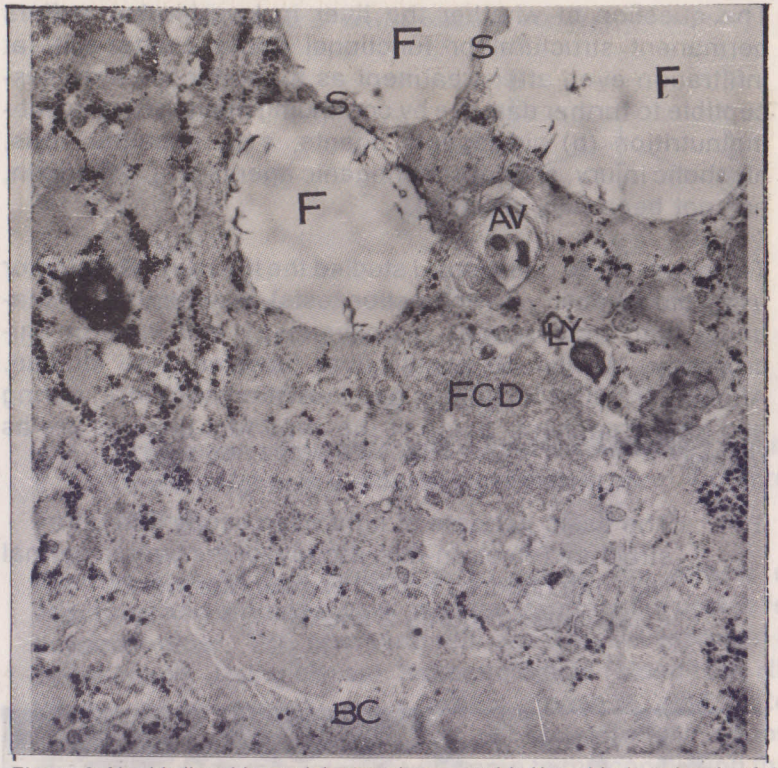


Figure 3 Neelde liver biopsy (electromicroscopy) in Kwashiorkor showing fat vacuoles (F), autophagic vacuoles (AV), focal cytoplasmic degeneration (FCD), Lysosomes (Ly), glycogenic particles and mitochondria, Epon embedded (Magnification X 19, 200).

2. In most cases the liver histology and electron-microscopy picture returned to normal post - kwashiorkor including liver function tests.

3. In a small percentage of the cases however, there is evidence of residual structural damage as demonstrated at the histological, histochemical and ultra-structural levels. This structural damage consists of:

a. persistence of the fatty infiltration of the liver after adequate treatment and clinical recovery from kwashiorkor.

b. Increase in collagen fibres or fibrous tissue *viz*: increased fibrosis without definite cirrhosis or severe laying down of fibrous tissue.(figure 4)

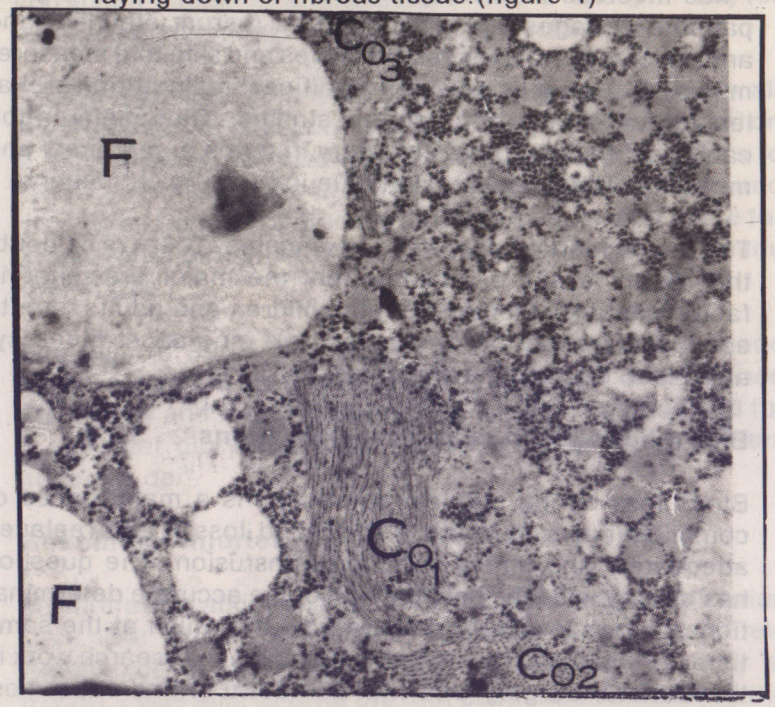


Figure 4 Needle liver biopsy (electromicroscopy) in Kwashiorkor showing increased deposit of collagen (co). Epon embedded (Magnification X 15, 600)

c Evidence of cellular injury as shown by demonstration of focal cytoplasmic degradation or necrosis.(figure 3)

This group of kwashiorkor patients would seem to be more susceptible to further damage by continuing malnutrition or sub-malnutrition. They may therefore be more susceptible to the development of cirrhosis or severe fibrosis from cirrhogenic agents, e.g., virus of hepatitis B, tropical parasites and alcoholic injury and also carcinogenic agents,e.g., Aflatoxin and consequently to the development of the cancer of the liver.

Malnutrition in Adult Surgical Patients in Lagos

I was involved in a study of malnutrition in adult surgical patients in Lagos using biochemical (serum albumin) and anthropometric studies (arm muscles and skin fold measurements). The studies revealed significant malnutrition prevalence level among the patients studied. Thus malnutrition can affect the outcome of surgery in terms of morbidity and mortality. These studies continue in our surgical patients.

The bench mark of poverty is low income. There is no doubt that in our cases of malnutrition, the major precipitating factor was poor feeding both in children and adults, due to economic reasons. Other factors are ignorance, illiteracy, and taboo on certain food items.

Blood Loss During Surgical Operations

Blood loss during surgical operations is a major cause of complications and death if the blood loss is not replaced adequately and timely by blood transfusion. The question has been what is the best method of the accurate determination of blood loss during operation, and which at the same time is simple and inexpensive. I initiated a research work in the General Surgery Unit with Dr. Idowu to find out a most practicable and accurate method of measuring blood loss during operations. We found out that the volumetric method i.e., weighing the swab used for mopping of blood at the, operation site was the most practicable and a cheap method of assessing blood loss. It has a disadvantage of underestimating the blood loss. We however found out that the estimation of blood loss by measuring of blood volume using radioactive chromium, gave the most accurate result, but it is expensive and not practicable as a routine test.

We found a highly statistically significant correlation between the estimated blood loss using the two methods. Consequently a regression equation was constructed to correct the under-estimation of blood loss using swab weighing method $y = 1.3x - 3.62$, where y = corrected blood loss

and x = calculated blood loss using gravimetric method. It is recommended that swab weighing method after applying a correcting factor is a practicable and a cheaper way of estimating blood loss in surgical operations.

During this type of public lecture I wish to appeal to all Nigerians to come forward to be voluntary donors of blood on a regular basis, for example, 6-monthly to our hospitals to save lives. This is the practice in developed countries and therefore shortage of blood is a rarity. An appeal is made for the National Blood Transfusion Committee to wake up to the challenges.

Shortage of blood is a major cause of complications and death in surgical practice. Please, and please, donate blood voluntarily and freely to save lives, to help humanity and for the greater glory and honour of God. *"Adgloriam majorem honorem dei"*.

Abdominal Injuries

My interest in abdominal injuries started during the Nigerian Civil War (1969/1970) when I worked in the First Field Ambulance of the First Division of the Nigerian Army at Enugu. I was able to write the first publication at least on the Nigerian side on military abdominal injuries, together with civilian abdominal injuries and many surgical lessons were learnt from our experience. They include (1) Colonic injuries or large intestinal injuries carried the highest mortality rate and infection was a common problem. (2) The easy procurement of blood in the war front for blood transfusion was of tremendous assistance in cutting down the incidence of complications and death. Incidentally, it was easy to procure blood because the soldiers went down town and to market places and compelled adult citizens to donate blood. (3) Delay in transportation of casualties from the war front to the Military Base Hospital also contributed to increased morbidity and mortality.

I am not here to debate the pros and cons of this war. My duty

was clear, and that was to save lives which I believe I carried out according assiduously in accordance with my professional ethics. I did not fire any short to kill any human being. I really wished that the war was prosecuted without firing a shot to kill a fellow human being.

The operation "Desert Storm" was led by General Schwarzkopf for the allied forces against Iraq. The campaign was completely computerized and virtually no ground conflict ensured before the war was terminated. How I wished minimal loss of lives was achieved at the completion of the Nigerian Civil War. Within 48 hours of cessation of hostility, I was reunited wholeheartedly at the Rest House at Enugu with my Igbo friends, my classmates in the secondary school and University and also with fellow doctors who worked with me at Lagos University Teaching Hospital. We embraced, kissed and hugged one another.

Our recent studies in the Department of Surgery have show that in the last five years the incidence of penetrating abdominal injuries in civilian practice has increased considerably as a result of armed robbery. The bull has to be held by the horns by the government and law enforcement Agents to combat this menace and prevent their causes. Together with Mr. I.R. Afolabi, Mr.A.A. Adesanya, Mr. C.E. Atimomo, we also defined prognostic factors in abdominal injuries based on abdominal trauma indices. There has not been a previous study on this subject.

Paediatric Surgery (Surgery in Children)
Fluids and Electrolytes Requirements in Neonates

This group of children called neonates, i.e., children in the first four weeks of life have a number of physiological peculiarities which make them different and delicate when compared to older children and adult patients. In the calculations of the fluids and electrolyte requirements in disease, the basic daily maintenance fluids and electolyte requirements must be known. This information had not been previously and scientifically determined in Nigerian normal neonates.

I developed interest in this area. Based on the fluids and electrolytes balance study, the basic daily maintenance requirement of fluids and electrolytes was determined in Nigerian neonates. The conclusion of the study is that the Nigerian neonates in the tropical environment require higher basic daily maintenance fluid intake when compared with their counterparts in the temperate climate of the world. These findings corroborate the findings of Prof. Elebute and Prof. Badoe in adults in Lagos and Accra, respectively.

Evaporative Fluid Loss

We also conducted some research on the factors that might affect evaporative or insensible loss of fluid (mainly from the skin), namely anthropometric measurements, and some weather parameters. Our findings reveal significant correlation with some weather parameters but none with anthropometric (body) measurements (Figure 5).

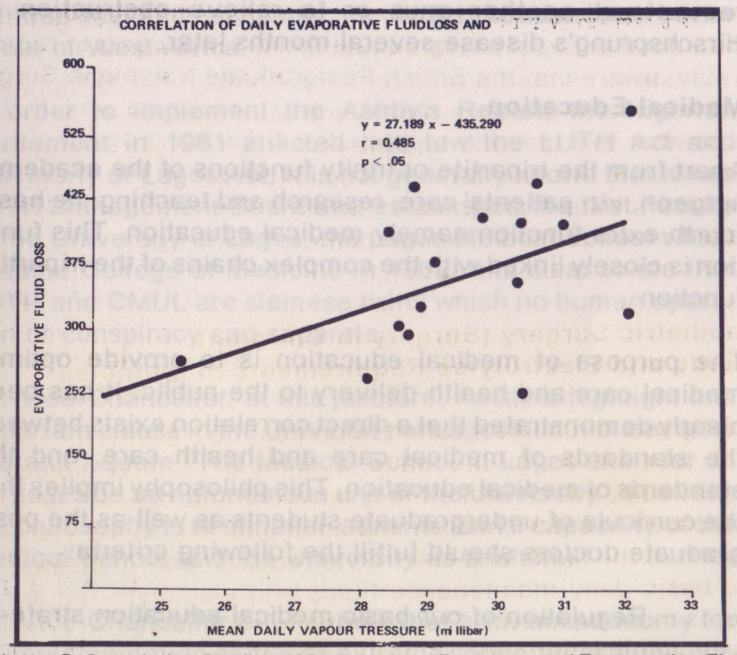


Figure 5 Correlation Studies of Daily Vapour Pressure and Evaporative Fluid Loss.

Imperforate Anus and Hirschsprung's Disease

Imperforate anus is a condition in which a baby is born without anus or there is an abnormal opening which is not in the right place for an anus. Hirschsprung's disease is a congenital abnormality affecting usually the lower parts of the digestive system (rectum, anal canal, sigmoid colon). It is due to the absence of some nerve tissue called ganglia which are found in the wall of the affected part. The hall mark of the disease is constipation. Professor Adeyemi and I, in our research endeavours, elucidated in detail for the first time in Nigerians, the type of imperforate anus, the clinical presentation, diagnosis and treatment of imperforate anus and Hirschprung's disease. We also concluded that in almost all cases an artificial opening in the wall of the stomach (abdomen) can be constructed under local anaesthetic as opposed to general anaesthetic. This opening called (colostomy) is a temporary anus before the definitive operation to reconstruct another anus or to relieve obstruction in Hirschsprung's disease several months later.

Medical Education

Apart from the tripartite or trinity functions of the academic surgeon, *viz*: patients' care, research and teaching, he has a fourth extra function namely medical education. This function is closely linked with the complex chains of the tripartite function.

The purpose of medical education is to provide optimal medical care and health delivery to the public. It has been clearly demonstrated that a direct correlation exists between the standards of medical care and health care, and the standards of medical education. This philosophy implies that the curricula of undergraduate students as well as the postgraduate doctors should fulfill the following criteria:

i. Regulation of our basic medical education strategies.

ii. Regular monitoring and assessment of our medical educational programmes.

iii. The need for innovation in medical education to meet the socio-economic scenario and the cultural context of the society.

In consideration of the foregoing, standards should not be compromised at any cost whatsoever.

Here in Nigeria the Medical and Dental Act of 1963 ably fought in the pre-independence era by the then Nigerian branch of the British Medical Association (now N.M.A) prepared the way for the foundation of undergraduate medical education as well as postgraduate training and qualifications. Sir Eric Ashby's Report of 1960 recommended the birth of Lagos Medical School. In contrast, Elliot's commission in 1945 which ante-dated Ashby's Report only recommended one Medical School, i.e., U.C.H. Ibadan to serve the whole of West Africa.

In order to implement the Ashby's Report, the Nigerian Parliament in 1961 enacted into law the LUTH Act and University of Lagos Act. It is not generally known that it was LUTH Management Board that established the first Faculty of the University of Lagos, the Lagos Medical School which became College of Medicine in 1962. It is clear to me that LUTH and CMUL are siamese twins which no human operation or conspiracy can separate.

Mr. Vice-Chancellor, at this juncture, I wish to highlight one important clause in the University of Lagos Act. It states *inter alia* and I quote "The Medical School in Lagos shall for all purposes be an autonomous unit of the University". I believe the philosophy is to enhance administrative capability of the Medical School and the University as a whole.

Mr. Vice-Chancellor Sir, I submit that such an autonomy for its implementation demands extreme cooperation, consultation and understanding between the College of Medicine and

the rest of the University. In this way a formidable force of progress headed by the Vice-Chancellor, University of Lagos, can emerge. Indeed the package is beneficial to the whole of the University of Lagos as well as to College of Medicine.

The philosophy of medical education has been followed to the letter by the evolution and development of the Medical School in Lagos, and the birth of the Nigerian Postgraduate Medical College of Nigeria. Firstly the College of Medicine in 1979 took a bold step to review critically its curriculum and the format of examinations. That then is the origin of the new curriculum which has been widely acclaimed as excellent in Nigerian situation. However a constant review is required to improve its horizon.

The National Postgraduate Medical College of Nigeria was founded in 1979 by Decree No. 61. In formulating the postgraduate curriculum in Surgery a balance was struck between the American system of postgraduate education and British education to evolve an independent programme for the training of postgraduate doctors in Surgery in Nigeria. I am aware that the British Postgraduate training in Surgery in recent times has undergone a revolution and it does appear that it leans towards the Nigerian programme. My bossom friend and a friend of the Department of Surgery, Professor G. Temple is the Coordinator of the programme for the whole of British Isles.

Let us now consider together the last function which again is a complex linkage with the chains of the complex molecule in the functions of the surgeons in the academic environment, and it is that of the function of the surgeon as a Medical Administrator.

Medical Administration

Mr. Vice-Chancellor, I submit that the academic surgeon by way of his training, has an inherent gift of being a good administrator. I described earlier on a surgeon as being incisive and decisive in making surgical decisions with military precision. Nonetheless, it is my view that management course introduced at some stage or the other in the training of a surgeon will enhance his administrative capability. Such training can be introduced during the undergraduate period. This is the practice in the Part IV course of the New Curriculum of the College of Medicine, university of Lagos. Here, health management is taught and examined as a subject. I am happy to note that the Senate of the national Postgraduate Medical College of Nigeria has unanimously agreed that the Part I/Part II Fellowship course should include an element of introduction to basic aspects of medical administration.

Finally, on medical administration, I end up by quoting Lord Brain who described the administrator by comparing him to an artist in his essay - "Some reflections of a genius". He said "But his task is far harder than that of the novelist or a playwright for he must take his characters as he finds them by his superior knowledge and will impose his plot upon theirs; He is an artist in action".

CONCLUSION

In conclusion, after all these, I would like to allude to the address of His Holiness Pope John Paul II to the University people of the University of Ibadan on the 15th February, 1982 during his historical visit to Nigeria. His speech was published in the special edition of L'Ossavatore Romano (February 1982). He was full of words of admiration and encouragement in appreciation of academic leadership and functions. He told the University Dons at the University of Ibadan, the cradle of the University life in Nigeria, and I quote "You are engaged in extremely important human endeavours. You are at the service of man through knowledge and research. As men and women of learning and research you are making a very significant contribution to the progress and development of Nigeria and indeed of Africa.

You strive to give the wider society a share in your beautiful, intellectual, scientific, technological and cultural patrimo-

ny". He continued "You support the scientific foundation necessary for the infrastructure which the economy of your great country needs. The future style of your society at large is still in your hands".

The Pope went on to touch on science education and religion. He said "Science and religion are both gifts of God, the eternal truth Education without religion is incomplete, and it is in danger of distortion and extinction. As University leaders you enjoy academic freedom which is a catalyst in the acquisition of knowledge and in the defence and pursuit of truth and knowledge. Nigerian University people, intellectuals, scientists and women of culture, you are the salt of the earth. You must not loose your taste. You are also set on hills, you are lights put on lamp stands"

Finally, His Holiness, Pope John Paul II reached the climax of his address to University people by saying "Elevate, Educate, Enlighten, Encourage and Animate. May the truth and knowledge of God shine and rain in your hearts and find expression in your lips. May His truth feed each and everyone of you and may His joy lead you to eternal life".

GRAND FINALE

As I come to the final conclusion and the grand finale of this lecture, I wish to thank God "Deo Gratias" because I believe that "God's time is the best". "Tempus Dei Maximus Est". In his divine wisdom he has decided that I should deliver my inaugural lecture in sound health 17 years after my appointment as Professor in the University of Lagos, and the 25th Silver Jubilee Anniversary of my appointment as an academic surgeon.

On this occasion, I would like to seize this opportunity to give my final acknowledgment. Firstly, I wish to thank all my colleagues in the College of Medicine, University of Lagos, in Lagos University Teaching Hospital and the rest of the University of Lagos. I had the singular privilege to associate with them amicably and cordially during the course of my

performance of the art and science of surgery. Secondly, I wish to thank my students, medical and dental students and postgraduate doctors for the constant inspiration and joy which they have given me. It is only appropriate that I seize this opportunity to thank members of my family for their constant support. They have ameliorated the pinch and sacrifice of an academic life. I thank my mother, Mrs. Candida Adenike Afodu who is by divine coincidence 87 years today. She has cared for me preciously since I lost my illustrious father when I was three years old. My mother's father, Chief Candido da Rocha, (Lodifi of Ilesha) of blessed memory took over naturally my welfare and education at all levels after the death of my father. "May light perpetual shine upon him".
Finally, I thank my wife, Unwa, for her forbearance and support in coping with the life of a surgeon who practises in the academic setting.

It is my wish that you will all find God's favours. He will support, shelter, strenghten and shield you all. He will show His love and cast His eyes of mercy and kindness on you. He will dwell with you and all your families all the days of your lives.

I pray that Nigeria will become a great country.

Mr. Vice-Chancellor Sir, Distinguished Ladies and Gentlemen, I thank you.

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