SUN, SEA, but not much SUX in SIERRA LEONE

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Introduction

The familiar blast of hot humid air hit me as I stepped from the plane on to West African soil looking forward to the challenge of a third visit1 [1,2] as the anaesthetist aboard the Mercy ship "*Anastasis*" (fig. 1). After a four hour journey by bus and ferry we reached the locked dock gates just after midnight only to discover that no-one could find the key! But this was Africa where time means nothing and it is the event that matters – so what was another 45 minute wait?

Fig. 1 The M/V Anastasis in West Africa

Founded in 1787 as a British colony for freed slaves and known as the "Athens of West Africa" in the 1960s, Sierra Leone had a well established infrastructure and considerable mineral wealth including diamonds, gold and bauxite. But sadly 20 years of successive corrupt governments have left the country economically and morally bankrupt; a shadow of its former self and now rated by the United Nations as one of the least developed countries in the world.

In April 1992, a new army regime led by 27-year-old Captain Valentine Strasser seized power in Africa's first bloodless coup. Since then morale in the country has greatly improved and there is new hope and pride in being Sierra Leonean. Chairman Strasser has renounced corruption, established a nightly curfew to inhibit crime and instituted a monthly nationwide clean-up campaign. However, a civil war still continues in the east, backed by the infamous Charles Taylor from Liberia, and a failed coup last Christmas led to a few deaths by firing squad which resulted in the British Government withdrawing desperately needed aid.

The Government Hospital Service

The health service has certain deficiencies due to lack of funds, equipment and doctors only prepared to treat patients (even in "government hospitals") after full payment in advance usually of sums of money equivalent to or more than a years salary.

During a guided tour round the Princess Christian Maternity Hospital the agonised cries of a young woman attracted my attention: she was a 19-year-old primip who apparently had been in obstructed labour for five days. Her family had been unable to raise the fee for a Caesarean section so she had been shut in a side room to die! Catherine Conteh and her baby, Gina lived because my offer to pay the 60,500 Leones (£70) was accepted and her operation under spinal anaesthesia was performed within three hours. Tragically on average two other women per week at that hospital are not so lucky; perhaps death comes as a merciful release?

There are only two full trained anaesthetists and six anaesthetic nurses for a population of over four million.

Most of the drugs used to be obtained cheaply from the former Yugoslavia but now there is only thiopentone, ketamine, ether, local anaesthetic for spinals and dwindling amounts of suxamethonium. There are no other inhalational agents, muscle relaxants or opioids. Every doctor has to carry his own personally paid for supply of drugs, including oxygen, as unfortunately pilfering is a way of life!

Anaesthesia for abdominal hysterectomy in a large unpremedicated, unmonitored and terrified woman proceeded as follows: for 45 minutes before induction the patient lay strapped to the operating theatre table like a chunk of meat while the staff prepared all the instruments, the surgeon, obviously experienced at non-verbal communication, wandered in without a word pulled the theatre gown over her head and proceeded to examine her abdomen! Induction at last began, after an IV had been sited using the giving set tubing as a tourniquet, 250mg of thiopentone (thus allowing four doses from a 1 gm ampoule!), suxamethonium 50mg followed by intubation with a brand new tracheal tube, which I donated as the local anaesthetist's collection consisted of three disposable tubes all now "cuffless" after many previous uses! The catheter mount was then connected to a breathing system consisting of a Heidbrink valve, bellows and an EMO machine (fig. 2) in a Mapleson A configuration and anaesthesia was maintained by ventilating the patient with 20% ether in oxygen enriched air.

About 15 minutes into surgery the patient started moving, so a further 25mg of sux was given and the vaporiser was topped up with about 50mls of ether poured over a judiciously placed finger holding down the filling port! The anaesthetist said he could not afford to leave any residual ether in the vaporiser, which required one litre to fill it up to the "minimum" mark on the gauge! This procedure was repeated several times during the two hours of surgery.

Fig. 2 The senior anaesthetist in Sierra Leone with his equipment.

The lack of non-depolarising muscle relaxants may have decreased the risk of awareness using this technique!

Back on the ship

Meanwhile back on the ship, during the two weeks, 60 procedures were performed free of charge on the local people; 33 of these were maxillofacial operations, ranging from cleft lip repair to hemimandibulectomy with insertion of a titanium plate for ameloblastoma. The remaining 27 were ophthalmic operations, mainly cataracts, squint correction and trabeculectomies under general anaesthesia using laryngeal mask airways, a legacy of my previous visits! Oral midazolam 0.5 mg/kg in orange juice proved to be a useful premed for children up to about 25 kg in weight; the result was most effective when the dose was given about 20 minutes prior to induction of anaesthesia.

The personal risk of working in parts of the world where there are no proper medical facilities can be high. Two permanent crew members suffered potentially lethal condiions requiring such urgent surgical treatment, that immediate transfer to a first world hospital was not an option.

Tony was a 25-year-old man of African origin who was working on deck one afternoon at about 16.30 when he was hit by a falling boom in the region of his left occiput. He initially said "I'm suffering, what's happened?" and then became unconscious with significant bleeding from his left ear suggestive of a basal skull fracture.

He was transferred to the ward with his cervical spine stabilised. During the next four hours he had two grand mal convulsions and in spite of medical treatment with diazepam, phenytoin, dexamethasone, mannitol and ampicillin his neurological status continued to deteriorate.

He became unresponsive to deep painful stimuli and developed a fully dilated and non-reacting left pupil. He was intubated, taken to theatre (after a four to one vote in favour of surgery!) where Gary, the maxillofacial surgeon, found a large extradural haematoma after his first attempt at a left temporal burr hole! The clot was evacuated and a small tear in the anterior branch of the middle meningeal artery was sealed by one touch of the diathermy. The patient was sedated and ventilated electively for the next 36 hours using an old Puritan Bennett electrical ventilator. Monitoring consisted of SaO_2, ECG, NIBP but no blood gas analysis was available. Spontaneous respiration started immediately after sedation and assisted ventilation was stopped. Five hours later he extubated himself!

During the following week his neurological status rapidly improved to the extent that eight days post-surgery he was able to walk and talk with only some slight right sided motor weakness and a resolving left third nerve palsy. Undoubtedly a factor in his somewhat amazing recovery was the dedicated nursing care and indeed continuing support from all members of the crew.

The medical team reckoned that in the UK he would have been in casualty for hours before a CT scan and transferral to a regional neurosurgical centre whereas in the USA they would probably have first CT'd his wallet and found it deficient!

The second case involved Brian, a 16-year-old American boy with a three day history of lower abdominal pain and nausea associated with fever, marked rebound tenderness and an increasing white cell count. This was not quite consistent with the usual shipboard 'gastro'; after a lottery to decide whether a GP with dated general surgical experience or a 'dentist' should perform the laparotomy, he was taken to theatre and a perforated retrocaecal gangrenous appendix was removed skillfully by a German maxillofacial surgeon who had not performed such an operation for about 18 years!

Thirty-six hours later Brian was transferred to hospital in Britain in case any intra-abdominal sepsis occurred.

Beaches and Sewers

Off the ship there were visits to magnificent beaches like Lumley with miles of clean white sand and the incredibly warm sea of a country only eight degrees north of the Equator. Seaside hotels like the Mammy Yoko and the Cotton Club were excellent but well beyond the means of most Sierra Leoneans.