

Exposure Treatment for the Badly Burned

New Techniques Developed at London Hospital

by Martin Chisholm

A British engineer working in Nigeria recently met with a serious accident. He came into contact with a high-tension electric cable and was terribly burned. He was flown to England and taken to the Burns Unit at Queen Mary's Hospital, Roehampton, in Surrey, where he was treated at the expense of his employers in the most modern unit for the treatment of burns in Britain, and possibly anywhere in the world. Now he is making a good recovery. This is typical of a number of cases from overseas treated at Roehampton.

The Roehampton unit was opened about two years ago and it has already become an important centre for post-graduate teaching on all aspects of burns treatment. Medical visitors go there to study its techniques from all parts of the world, and particularly from France, the United States of America and Scandinavia.

The techniques practised at Roehampton are developments of methods pioneered by the late Sir Harold Gillies at the famous plastic surgery unit at Basingstoke, Hampshire, England, where many terribly burned airmen and other servicemen were treated and rehabilitated during World War II.

Treatment by Exposure

To the layman visiting the unit one of the most striking features of the work is the method of treatment by exposure. This method has been developed during the past 10 years. From the moment of admission a patient, however severe and extensive his burns, is treated without the use of closed dressings, because it has been realised that the conditions of warmth, darkness and moisture created by

a dressing from an ideal state for the breeding of bacteria.

Instead of the burn being covered the patient lies on a mattress made of a network of plastic threads. Between this "exposure frame" and the burned areas layers of plastic foam "blanket" are placed and warm, dry air is circulated over the burns by electric blowers. The result is that moisture from the burn is able to evaporate through the plastic foam and its supporting netting, and it has been found that this stage of the treatment lowers enormously the danger of infection, and results in a general improvement in the patient's condition.

Dangerous Phases

Unlike many other injuries burns are not at their worst at the time when they happen and the specialists at Roehampton expect a severely burned patient to get worse, rather than better, shortly after admission. There are three well-marked danger phases. The first is the period of shock, which may last from the first to the third day after injury. Then, about a week after the actual burn, there are four critical days when various stress symptoms known as "burns illness" manifest themselves. "Burns illness" is a severe and extremely complex disturbance of the whole body in a severe and extremely complex disturbance of the whole body in which its chemical processes are upset. In fact a badly-burned patient can be described as a "human laboratory" which is in some severe cases, extremely resistant to treatment.

The third dangerous phase comes in the second to third week when toxæmia is liable to set in.

It is against this background that treatment at Roehampton has been worked out. On admission a patient is taken at once to the "shock room" and placed on an "exposure frame". Immediate shock treatment consists of transfusions of artificial blood plasma to replace the tremendous losses of fluid from the blood which a burn causes. Through these losses the blood becomes over-concentrated, and is not sufficient to keep the circulation going properly.

The Fight Against Bacteria

Diet forms an important part of treatment because to restore the proper functioning of the body's chemistry a high intake of protein and calories is necessary.

To make the exposure treatment safe, and to avoid cross-infection between patients, stringent measures are taken to check the presence of bacteria, not only in the burns of individual patients, but in the throats of doctors and nurses, and even in the air. A patient, for instance, with a high count of streptococcus may be moved from a ward to prevent him cross-infecting another patient. The wards are small and planned so that if a bacteria count taken from the air of any one of them is dangerously high, the ward can be evacuated.

About the 14th day after admission the patient suffering from deep burns is usually ready for the operation—a carefully organised piece of teamwork in plastic surgery—in which the dead tissues are cut from the burned area and skin grafts, taken from undamaged parts of the patient's body put in place. Then, for the first time since admission, a normal covered dressing is used.