

(3) Monocytosis and mild generalized glandular enlargement may be a feature of this condition.

I am thankful to my O.C. Colonel A. Rosenbloom for allowing me to publish the résumé of the clinical notes.

### A SIMPLIFIED LEUCOTOME

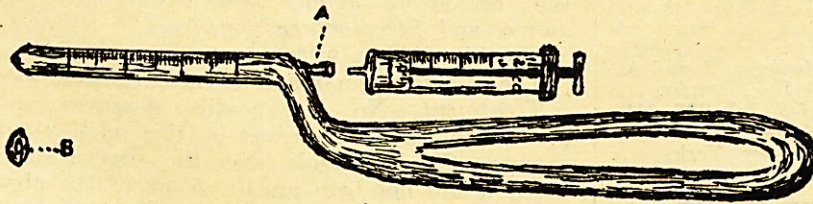
By B. N. BALKRISHNA RAO, F.R.C.S. (Eng.)  
Professor

and

T. CHANDRASEKHARAN, M.R.C.S. (Eng.)  
Assistant Professor, Department of Surgery,  
Krishnarajendra Hospital, Mysore, S. India

FREEMAN and Watts recommended the use of a Killian's nasal elevator in the performance of pre-frontal leucotomy in mental disorders. A combined suction and cutting instrument was first described by McGregor and Crumbie (1942). This instrument was used by Rao and Govindaswamy (1944) in a series of cases, and during operation in one case, the rotating blade slipped inside the brain from its mounting, and the instrument had to be withdrawn from the substance of the brain with the blade open, after an extensive resection of the skull; the laceration to the brain and dura mater was considerable, and there was a great deal of hæmorrhage. To obviate accidents from such a complicated leucotome, a simplified instrument has been devised.

This is essentially a Killian's nasal elevator as recommended by Freeman and Watts, but the blade is hollow, with an attachment at its proximal end to fit a record syringe. The outside of the blade is graduated in centimetres to indicate the depth to which the instrument has been introduced. The instrument was made for us by a local silversmith (*see figure*).



Simplified leucotome (diagrammatic).  
A. Attachment for syringe.  
B. Cross-section of blade.

The advantages of this leucotome are:—

- (1) It is simple in design and has no complicated mechanism to get out of order.
- (2) It has all the advantages of the complicated McGregor and Crumbie leucotome. It can be ascertained whether the instrument has entered the ventricle of the brain or not, and the sectioning of the white matter can be done

in one manœuvre. This eliminates the use of a separate needle.

(3) The instrument can be made by any silversmith.

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### CEREBRAL EMBOLISM FOLLOWING ANTRUM PUNCTURE

By KHAN BAHADUR M. BASHIR, B.S.C., M.B., B.S.,  
D.L.O., D.O.M.S.

Professor of Oto-Rhinolaryngology, King Edward  
Medical College, Lahore

G. M. TANEJA, M.B., B.S.

Medical Officer, Ear, Nose and Throat Out-patients  
Department, Mayo Hospital, Lahore

and

M. A. SHAH, M.S.

Department of Anatomy, King Edward Medical College,  
Lahore

### Introduction

A WORKER in the nose department of a largely attended general hospital has not to wait long before he comes up against some unpleasant accident following such a simple procedure as antrum puncture, or an attempted puncture. Fortunately most of these accidents are trivial. Mishaps like the entry of the trocar into the opposite wall resulting in infiltration and emphysema of soft parts of the cheek and orbit are such as can usually be avoided through judicious care, and tend to decrease as the experience of the operator increases. There are other accidents, however, that are beyond the operator's control; examples are cocaine poisoning, or the reflex irritation of vagus through the maxillary division of the fifth cranial nerve. Under the same heading, but in a more serious category, are grouped cases due to vagal shock or apoplexy resulting in death, and cases of air embolism which may or may not be fatal.

Air embolism, first reported by Hajek (1926) in 1907, is one of the rare complications following antrum puncture. The following case of cerebral air embolism is illustrative:—

### Case report

Mrs. K. D., 22, Hindu female, married (one child), attended the Ear, Nose and Throat Out-patients Department of the Mayo Hospital, Lahore, on 28th October, 1944, complaining of cough, worse at night, following



an attack of cold in the head a fortnight before. As nasal examination warranted, a proof puncture was done on the right side under local anæsthesia (10 per cent cocaine plug for 15 minutes). The introduction of the trocar and canula through the inferior meatus was accomplished without much resistance. There was no bleeding. With the compression of the air bulb of the Higginson's syringe, which was done without undue pressure, the patient complained that she was feeling very ill. The syringe was immediately disconnected, the canula removed, and the head of the patient lowered. As the head was lowered she had a generalized clonic convulsion starting from the left hand and spreading to the entire body, the legs being involved last. During the convulsions she became unconscious; the facies were ghastly pale. The head deviated to the right, the pupils were dilated but reacting to light, the pulse was feeble. After about two or three minutes, the convulsion disappeared but all the four limbs remained rigid for about 35 minutes, after which the corneal reflex reappeared, the pupils tended to assume their normal size, and the patient recovered consciousness. Examination of the nervous system at this stage revealed nothing except but the paralysis of the left arm. She was admitted into the hospital for observation. The paralysis lessened considerably after 3 hours but disappeared completely only after 17 hours. During recovery there was a slight rise of temperature (99°F.); she complained of headache and vomited several times.

At the onset of symptoms, the patient was kept warm, smelling salts were presented, injections of  $\frac{1}{2}$  c.cm. of 1 in 1,000 adrenalin hydrochloride were given hypodermically, and 1.7 c.cm. of coramine was given intramuscularly.

*Discussion.*—In the differential diagnosis, hystero-epileptiform convulsions could be ruled out at the outset. Similarly a spasm of one of the cerebral arteries need not be considered in view of the absence of evidence of cardio-vascular degeneration. A septic embolus from the antrum would have been arrested in the lungs, and in any case would not have resolved so quickly and so completely within seventeen hours. A careful examination of the heart did not reveal any disease, and hence cardiac vegetations could not be a possible source of the embolus. The mode of onset of the symptoms and the speedy and complete resolution of the lesion in the brain point to an air embolus as the cause.

*Source of the embolus.*—The air embolus enters the general circulation through a puncture in one or more of the veins draining the maxillary sinus. It may produce cardiac and respiratory symptoms, or, as in this case, nervous symptoms, according to the principal or accidental paths followed by the embolus. The course of the embolus causing respiratory and cardiac symptoms is easily explained; but more difficult to understand is the transfer of the embolus from the venous into the arterial system, in the absence of a patent foramen ovale, thereby causing lesions in the central nervous system, such as occlusion of the central artery of the retina (Hajek, 1926) or one of the branches of the cerebral arteries as in the present case. It is believed that an air embolus can pass through the lung without producing corresponding symptoms and lodge in the cerebral circulation (Lewison, 1925).

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**INVESTIGATION INTO THE TOXICITY OF LARGE VOLUME SERUM TRANSFUSIONS**

By S. N. HAYES, O.B.E., F.R.C.S., F.R.C.O.G.  
 LIEUTENANT-COLONEL, I.M.S.

*Professor of Midwifery and Gynæcology, King Edward Medical College, Lahore*

SANT RAM DHALL, M.S. (Pb.), P.C.M.S.

*Clinical Assistant to the Professor of Midwifery and Gynæcology, King Edward Medical College, Lahore*

and

MOHAMMAD ABDUS SAMI, M.S., P.C.M.S.

*Late of Lady Willingdon Hospital, Lahore*

THE investigation was undertaken with the object of determining the toxicity or otherwise of liquid serum. We had been using liquid serum with satisfactory results for the past two years in quantities up to 1,000 c.cm. Brigadier H. L. Marriott, R.A.M.C., consulting physician to the Medical Directorate, G.H.Q., however pointed out that, in order to determine toxicity, larger volume transfusions were required and that the rate of transfusion must be rapid.

It was consequently decided to transfuse a series of cases with serum under agreed standard conditions. It should be noted that the investigation was undertaken for this purpose alone, and that in certain cases the technique used could not be described as logical—the use of other fluids being indicated. For example—case 19 obviously required blood, and some of the cases would have benefited by the more active treatment of dehydration.

Under these conditions it could reasonably be expected that, if serum was toxic, its effects would be enhanced, and manifestations of toxicity would be increased.

It is generally accepted that plasma is innocuous when given in large quantities, and the majority of British workers favour this substance. The majority of American and Canadian workers, however, favour serum. Plasma is more difficult to prepare and, as it is diluted with sodium citrate solution, it contains less protein (approximately 30 per cent) than serum. Serum on the other hand is easy to prepare and maintain, and is concentrated, but it is said to contain toxic bodies, produced at the time of clotting, which cause reactions, many of which are severe and may be fatal.