CEREBRO-VASCULAR ACCIDENTS DURING PREGNANCY AND PUERPERIUM

by

K. C. MUKHERJI,* M.S.

More than 40% of maternal mortality is associated with cerebro-vascular complications. Commonest among these is subarachnoid haemorrhage, the source being nearly always a congenital aneurism in the 'circle of Willis', rarely an angeomatous malformation (5%). Such a lesion is usually superficial, 80% of which eventually rupture — sometimes effacing themselves in the process, so that they cannot be demonstrated on angeography or at operation. The rupture is commonest during the 3rd. trimester of pregnancy which may be the period of the peak of cardiac load; 25% only occur during labour or immediately after delivery, so that sudden strain seems to play a minor role.

In older people with arteriosclerosis the haemorrhage is usually intra-cerebral, from a deeply-seated blood-vessel with degenerated walls. It may subsequently burst through an area of encephalomalacia due to the bleed into the sub-arachnoid space. In them surgery offers little prospect. In young subjects with normal kidneys and cardio-vascular system, however, the prognosis is brighter; in those who are able to survive the first onslaught and a good-sized haematoma can be evacuated in time, there is often a remarkable recovery, as illustrated in the two cases to be described. There is an intra-cerebral 'component' in an over-all 70% of cases.

Case 1. L.B. (f), 25 years, had been delivered normally of her 5th and healthy baby 16 days previous to admission. She started complaining of right-sided headache for two days with occasional vomits. On examination patient was drowsy with a temperature of 101°F., pulse 104/min. and a blood-pressure of 110/70 mm. She had a rigid neck and bilateral positive Kernig's sign; pupils were equal and normal in size and reaction. The jerks were exaggerated on both sides (+++) with up-going toes. A lumbar puncture subsequently showed uniformly blood-stained c.s.f. Shortly after, patient's left pupil dilated and became fixed, as patient also turned de-cerebrate. She was now noticed to have bilateral papill-oedema and left limbs weaker than the right.

A right carotid angeography (Fig. 1) showed marked displacement of the anterior cerebral artery to the left, of the middle cerebral group upwards and forwards and stretched and of the posterior cerebral downwards and to the left; the internal cerebral vein was concave downwards and displaced up. All these suggested a space-occupying lesion in the right temporal lobe. This was, therefore, followed by a right temporal burr-hole and evacuation of a small subdural (2 c.c.s) and 15 c.c.s of intra-cerebral blood-clot along with necrotic brain-tissue by aspiration through a brain-cannula with a syringe. This was followed by immediate recovery of consciousness — patient spoke a few

* *Sr. Neurosurgical Registrar, K.E.M. Hospital, Bombay.*

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words and her pupils came back to normal. Weakness of the left limbs, however, persisted with increased jerks and up-going toes. She was started on antibiotics — Penicillin and Streptomycin — in full doses and next day, a right temporal fossa craniectomy was done. The dura was tense and non-pulsatile and the brain oedematous, the surface being blood-stained. On 'decapping' the cortex, underlying white matter was found necrotic which was sucked away with a mass of old clotted blood, quite superficially. A vein-segment with dark, clotted blood visible inside was taken for biopsy.

Post-operative tracheal aspiration showed purulent tracheo-bronchitis. The patient regained full consciousness on the operation table. The left limb, however, remained weak and the neck stiff. A lumbar puncture was done next day to show xanthochromic fluid with 94 cells, mainly polymorphs and 200 mg.% of protein; there was no organism on smear or culture. The biopsy-specimens showed a simple blood-clot inside a vein and small petechial haemorrhages in the remains of brain-tissue — but no evidence of infarct.

Next day, patient became semi-conscious and developed pitting oedema of the whole of the left lower limb — 'phlegmasia alba dolens.' Chloromycetin was started with elevation of the limb. The scalp-wound subsequently broke down, discharging frank pus — which grew Staph. aureus, sensitive to chloromycetin. This was, therefore, started in full doses along with vitamin E and local application of hirudoid ointment all over the affected leg. Her state of consciousness deteriorated with complete left-sided hemiplegia and hectic pyrexia. Tube-feeding and careful nursing was continued with antibiotic. After two weeks she started to improve; oedema of left leg regressed with return of movements. Fundi returned to normal and after a few days temperature also came down to normal. A left hemi-anopia could now be detected for the first time and persisted. She was ultimately sent home, walking normally with slight residual weakness of the left hand, hemi-anopia and scalp-wound discharging through a small sinus; this had to be re-dressed repeatedly in the o.p.d. for a long time.

Case 2. M.R., F., aged 20 years, was admitted 20 days after delivery, with frontal headache and vomiting off and on for three days before admission. On examination, she had a normal temperature with a pulse of 76/min. and b.p. 100/60 mm. She was confused and restless with a markedly stiff neck and positive Kernig's sign; pupils were moderately dilated and reacting sluggishly. There were a right 7th nerve palsy of the supranuclear type, right-sided hemi--anopia, -anaesthesia and -paresis (spastic) with both plantars up-going.

She was treated conservatively for 5 days during which she gradually improved, became alert and co-operative; the headache disappeared as well as the hemi-paresis to a great extent. A lumbar puncture showed clear fluid with 8 cells, mainly lymphocytes and 120 mg.% of protein. In spite of clinical improvement, a left temporal burr-hole was done and 15 c.c.s of dark fluid blood aspirated from a depth of about 4 cm. directly inwards. Following this, her improvement was maintained except for an onset of papilloedema in both the fundi and a slight degree of nominal aphasia.

A left temporal craniectomy was advised therefore and undertaken 6 days later; a good sized blood-clot, almost solid was turned out. Subsequent recovery was uneventful with regression of fundi to normal and complete recovery of limb signs; she was left with minimal aphasia only.

Discussion

Normal pregnancy is a physiological state, though associated with considerable metabolic and endocrine changes, involving an increase in plasma-volume, relative reduction of serum-electrolytes and a large output of oestrogen, in a conjugated form in the circulation. Under the influence of oestrogen, blood-vessels dilate, as is known, in the pelvis and inside the cranium as well, specially so the abnormal ones, if any, with an increased risk of rupture under stress of labour or otherwise and necessary

consequences. Headache and vomiting are however such common features during pregnancy with slight toxaemias that it is no wonder that cerebro-vascular accidents during pregnancy are often missed. An *unexplained coma, with or without neck-rigidity and convulsions or headache with or without focal signs,* calls for a lumbar puncture under manometric control. If the c.s.f. is blood-stained and/or the superficial fluid is xanthochromic, this must be followed by a cerebral angeography without delay. Severe pregnancy toxaemias, it must be remembered, however, with hypertension, cerebral oedema or vaso-constriction as a result of too many fits, can also give a blood-stained c.s.f. and this has to be excluded by normal blood pressure and urine report.

Deficiencies are easy to occur during pregnancy and afterwards—in protein, minerals and vitamins. Case 1 was definitely one so affected as well as in a state of neurological deficit to such an extent as not to escape diagnosis. Patient had nevertheless to pay the price by going through a regular ordeal of a series of complications as anticipated. The ultimate disability was relatively slight, one must admit, and was even less in the second case in whom surgery was undertaken at an opportune moment with the first indication of rise of intra-cranial tension. Both being young subjects, with fairly normal cardio-vascular system and kidneys, were ideal subjects for 'clot-surgery'.

Summary

Two cases of intra-cerbral haemorrhage following delivery are presented, which might have been missed without neurological consultation and were salvaged by prompt surgical intervention.

References

1. Kennedy, W. F. C. and Pennybacker, J.: Postgrad. Med. J.; **38:** 435, 1962.
2. Newman, J. D.: J. Neurol. Psychiat.; 2, 38.
3. Pedowitz, P. and Perell, A.: Am. J. Obst. & Gynec.; **73:** 736, 1957.
4. Richardson and Hyland: Medicine; **20:** 1, 1941.
5. Wacker, M. N.: Am. J. Obst. & Gynec.; **78:** 1189, 1959.

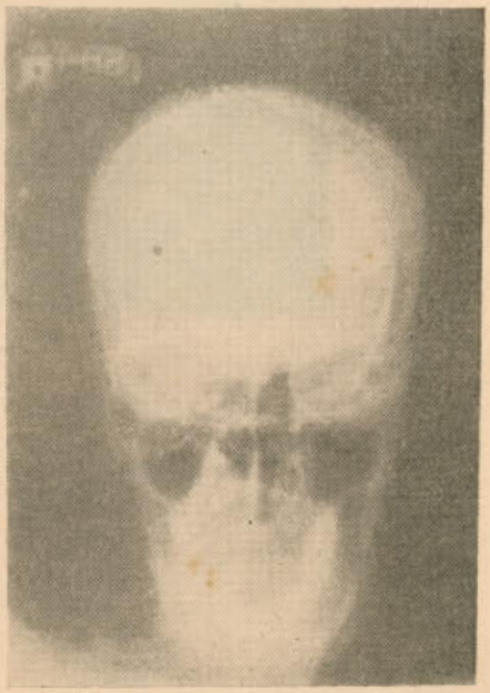

Fig. 1.

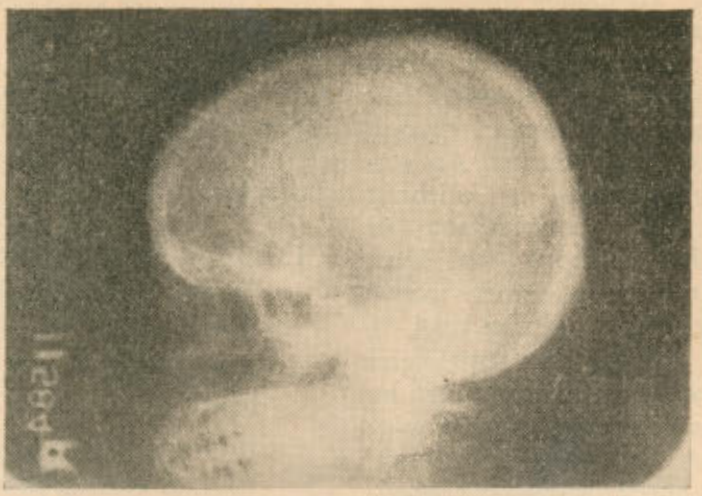

Fig. 2.

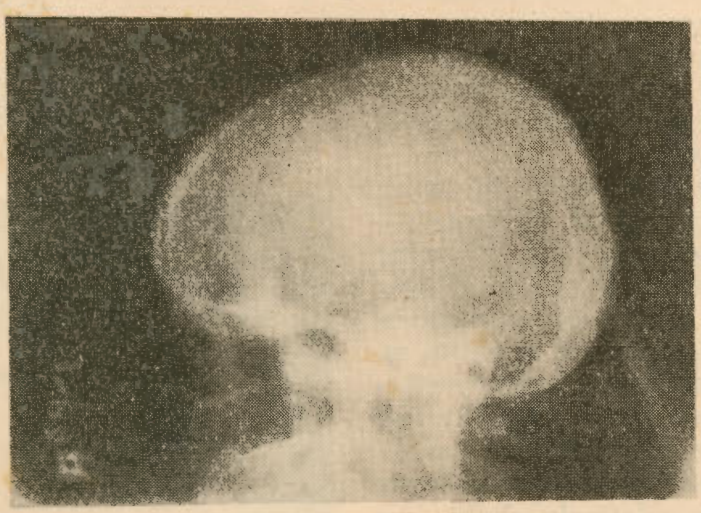

Fig. 3.