ETHER CONVULSIONS: A NOTE AS TO TREATMENT.

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Cases of convulsions during ether anaesthesia continue to be reported in considerable numbers, and as yet there is no definite knowledge as to their causation, though many theories have been advanced.

The following case is of interest because a method of treatment adopted was immediately successful, and this may throw some light on the cause of the convulsions.

The patient, a female aged seven years, was admitted to hospital in April, 1931, with peritonitis due to perforated appendix. An operation was performed immediately on admission. The peritoneum was drained with two tubes, one through the appendix incision and one supra-pubic.

The appendix was not sought for. She did well, healed up and was discharged from hospital in three weeks.

The anaesthetic used was A.C.E. mixture, followed by open ether, and it was without special feature.

The little girl was re-admitted for appendicectomy on July 29, 1931. She was taken into the theatre for operation on July 30, a very hot day (the theatre temperature being in the region of 80°F.).

The patient was a very fair-haired child, with pink skin and dilated pupils.

Preliminary medication was limited to atropine gr. 1/150.

The anaesthetic used was ethyl-chloride followed by ether on an open mask. It was given by a student under supervision, and a small stream of oxygen was admitted throughout. Induction was quiet and surgical anaesthesia was quickly reached.

The caecum was fixed by adhesions, and considerable difficulty was experienced in mobilising that organ in order to enable the appendix stump to be found. Deep anaesthesia was necessary throughout, but the child's condition was good.
The remaining stump of the appendix was eventually found and removed in the usual way.

Just as the peritoneum was about to be closed, i.e., after about thirty minutes' anaesthesia, clonic convulsions started in the face and jaws and rapidly spread to the rest of the body.

The anaesthetic was at once stopped and CO₂ + O₂ were given from a bag through valves, in order to hasten the elimination of ether, but the convulsions continued and the abdomen was closed with difficulty between spasms.

As the child looked hot and her face was flushed and congested the head of the table was raised, with the idea of relieving any congestion of the brain. The convulsions at once ceased and did not recur. The child was returned to bed and the head was kept well up for some hours.

There were no further spasms, and beyond the fact that the pulse next day was 140 and remained above 100 for three days, recovery was uneventful. The patient vomited three times in the night after operation, but not again. Examination of the ether employed showed no impurities to be present.

From this case it would seem that increased cerebral vascularity may play a part in the cause of ether convulsions, and this is borne out in a letter in the British Medical Journal (August 22, 1931, p. 358) by Dr. L. T. Clark, of Birmingham. He advances the theory that increased vascularity of the cerebral cortex, particularly of the Rolandic area, is caused by histamine bodies liberated by the trauma of surgical operation and that this effect, being increased by ether, is the cause of the convulsions.

He also draws attention to the fact that convulsions do not occur with chloroform, which tends to cause cerebral anaemia rather than increased vascularity.

A case has also been reported to me where the convulsions were successfully arrested by pressure on the carotid arteries.

If the above theory is correct convulsions should be more common in operations under deep ether in the Trendelenburg position; but in a very large number of these cases no instance of convulsions has been seen.

Whatever may be the cause of the convulsions, their treatment by raising the head is certainly worth a trial.