most important of these is exophthalmic goitre. In this disease anaesthesia can be produced with the least possible distress, and the excess of thyroxine present detoxicates the drug and minimizes the risk of toxic symptoms; the absence of any deleterious effect upon the heart is an additional advantage. Avertin is of value in operations about the nose and throat when the use of inhalation anaesthetics is inadmissible; in spite of prolonged coma and depression of respiration it is stated³ that it can be used in these cases without anxiety. Further, it is useful in certain abdominal conditions because of the absence of post-operative sickness.

It is possible that some persons are unduly sensitive to avertin, for, even when allowances have been made for the unsatisfactory method of calculation, administration of the usual dose of 0.1 gram per kilo does not necessarily produce the same degree of narcosis in different subjects; for example, in some cases unconsciousness is not obtained, while in others death has occurred for no apparent reason.^{10 16} This is a point which might well be investigated further.

My object in this paper is to indicate the relative advantages and disadvantages of solid as opposed to volatile anaesthetics. Avertin is perhaps the best of the solid anaesthetics which have been made available up to the present time, and, although it is not so satisfactory for routine use as the volatile inhalation anaesthetics commonly employed, it is of particular service in the conditions which I have mentioned.

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CONGENITAL RADIO-ULNAR SYNOSTOSIS.

BY

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CONGENITAL radio-ulnar synostosis, which consists in ankylosis of the upper end of the radius and ulna, is exceedingly rare. The condition is said to be due to a constitutional error—the result of the imperfect separation by the mesenchymatous tissue of the cartilaginous axials of the forearm, which take part in the formation of the bones.

The factor which controls the development of a synostosis is unknown, and various causes have been invoked to account for the condition. Certain records suggest an inherited condition with synostosis as a dominant Mendelian characteristic; a second possible factor is related to those which control the chondrification and ossification of the skeleton, many of the affected individuals being subject to exostoses. In our case, in spite of lengthy cross-examination of the patient and her relatives, we were unable to find a history of a tendency to loss of supination in any other member of the family, whereas the patient was of healthy appearance and of normal stature, without any disproportion in the size of the limbs, etc.; no exostoses were present.

The condition is described as having three types. (1) The radius is unaltered in shape, but the head is ossified to the region of lesser sigmoid fossa of ulna. (2) The upper part of the radius shaft shows no definitely moulded head (the headless type), and the upper end is moulded to the

outer aspect of the ulna. (3) In the "dislocated head" type the head of the radius is well developed, but it is displaced backwards or forwards. This condition is usually unilateral, and associated with syndactylism, supernumerary thumb, or even absence of thumb. The case here reported belongs to the third type, and it also presents the unusual occurrence of being bilateral.

A girl, aged 18, was referred to me on July 23rd, 1929, at the out-patient department, and I reproduce the doctor's letter verbatim: "The bearer, M. S., suffering from fractured left olecranon. It was done seven weeks ago; a stellate type of fracture was found. The arm, after extension, was flexed to give her the 'carry to mouth,' and she was put on early massage. Massage has not yet completely straightened the arm."

On examination it was found that the left elbow could not be fully extended, whereas flexion was normal. The hand was held

FIG. A.

FIG. B.

in semi-pronation, but no supination was possible. Pronation could be carried out to about 90 degrees. The olecranon process appeared to be deviated towards the medial side of the elbow, whereas the head of the radius was directed towards the posterior aspect of the external condyle of the humerus, and was palpable as a distinct projection on the outer side of the elbow. No trace of the olecranon fracture of the elbow could be made out. On examination of the right elbow it was found that a similar condition was present, the arm being held in semi-pronation with limitation of extension. Flexion at the elbow-joint was normal, whereas pronation could be carried out to about 90 degrees.

The muscular development was normal, and there were no exostoses present. There was no disproportion between the upper

FIG. C.

FIG. D.

arm and forearm. No history could be obtained of any familial difficulty or abnormality. The patient stated that she could not carry things "as other girls could," but she had not found any disability in doing her work. The blow on the elbow had caused much pain when incurred, and it was only after this that the mother thought that the patient could not extend the arm properly.

X-ray photographs were taken of the elbow-joint, radius, ulna, and humerus on both sides, and line drawings have been made. From these it is seen that the radius of the left side is more curved than normal (Fig. A). The head of the radius is somewhat expanded and displaced backwards with relation to the humerus, and does not articulate with the humerus. A clear definition cannot be seen between the radius and ulna, and ossification appears to be present between the radius and the ulnar region of the coronoid process. A similar condition is seen in Figs. D and C, which were taken of the right elbow region. Fig. A shows how it was possible in a bad radiogram to diagnose a fracture of the olecranon.

The case presents certain interesting features.

1. The rarity of the condition, especially of bilateral "dislocated head" type of synostosis. With a view to determining whether any cases are accidentally missed 500 radiograms taken at the Royal Infirmary of elbow-joints were examined; I was unable to discover a case of synostosis.

2. The importance of recognizing the condition in view of possible "compensation" for the loss of extension and supination, which the anxious parent may only discover for the first time after an accident.

3. In spite of the definite deformity, the little inconvenience entailed; in this case the blow in the region of the elbow was the first idea that the girl's parents had of anything unusual. The condition therefore does not require any surgical intervention.

4. As regards causation, this case does not fall in with the theory of generalized defect of the controlling factor of chondrification and ossification; there were no other defects, such as exostoses.

5. No hereditary influence could be ascertained.

Since the foregoing was written another case of synostosis has been seen by me, but this case belongs to the first of the three types, and is unilateral.

A child, aged 4 years, was brought to the Royal Infirmary on account of "stiffness after knocking the elbow." There was no sign of bruising, and on examination it was found that extension and flexion at the elbow-joint were normal. Supination was not possible, and pronation was only possible through an angle of 20 degrees. There was no evidence of any dislocation, and the bony points seemed to be in normal position. The extensor ossis metacarpi pollicis and extensor brevis pollicis were somewhat taut. The grip was unaffected, but the carrying of objects involved adduction of the elbow. An x-ray photograph was taken, a tracing of which is seen in Fig. E. There were no exostoses, and no family history of a similar condition.

The case was first seen in May, 1930, by Mr. Chisholm, F.R.C.S.,

and now (August, 1930), after massage and movement, the muscles referred to seem normal. The child is able to carry out normal movements with greater ease than when seen in May.

Here again we find certain important factors, which have been already discussed.

1. The condition is first noticed after an injury.

FIG. E.

2. Inconvenience is slight.

3. No hereditary influence could be ascertained.

4. The signs do not accord with the theory of generalized defect of the controlling factors of chondrification and ossification; there was an absence of exostosis, as in the first case.

I am indebted to Drs. Rayner and Harrison for the use of the x-ray films; and to Mr. Chisholm, resident surgical officer to the Infirmary, for sending me the second case.

AN OUTBREAK OF PUERPERAL FEVER IN A NURSING HOME.

BY

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THE present interest in maternal mortality affords an excuse for the narration of the following observations and facts in connexion with an outbreak of sore throat, puerperal infection, and scarlet fever in a nursing home. The house was formerly a private residence standing in its own grounds; it is drained to a sewer, and is in every way hygienic. There are eleven rooms, seven of which accommodate patients. The staff consists of the proprietress-matron, who is a fully trained nurse with the C.M.B., and a fully trained nurse. When there are sufficient patients another fully trained nurse is employed for night duty. The matron has had considerable experience in maternity work in a former home conducted by her, where she had upwards of 300 cases without a death and without a febrile complication to cause anxiety. In the present home she had 83 cases without incident until the first trouble arose in January, 1930.

CASE I.

A, a primipara aged 21, developed a sore throat and then a rash three days after a normal confinement. There was a slight perineal tear, which was sutured. Only one vaginal examination was made by the matron; the doctor in attendance made none. Puerperal fever was diagnosed, and the patient was removed to a nursing home in a neighbouring city, where she received treatment by scarlet fever antitoxin at the hands of a gynaecologist. After a long convalescence, in which albuminuria appeared, she recovered.

Following A there were 8 normal cases, in one of which slight sore throat developed, but the patient said she often had a sore throat of a similar character. This patient was in the home when B was admitted twenty-two days after A had been removed.

CASE II.

B, a primipara aged 23, had a normal confinement, breech presentation, and had had one vaginal examination. There was a perineal tear, which was sutured. On the third day after the confinement she developed a sore throat, temperature 101° F., and had a generalized patchy rash. She was removed to hospital, where she died seven days after the confinement.

There had been no contact between B and the aforementioned patient with slight sore throat. The home was thoroughly disinfected and aired, and no new cases were admitted for a week. The matron was advised to use gauze face-masks when in attendance on patients, and she and her assistants carried out this instruction. Sixteen normal cases followed, and seventy-two days elapsed before C was admitted.

CASE III.

C was a primipara aged 30. Labour was instrumental, and there was a perineal tear, which was sutured. Two days later this patient developed a temperature and a severe pain in the sacral region, which was attributed to rheumatism. This pain was so intense, especially on movement, that the perineal toilet could not be carried out satisfactorily. This pain was presumably secondary to a slowly developing streptococcal infection of the torn perineum. The patient was three weeks in the home, and was seen twice by a gynaecologist. She returned to her own home and then went to a private nursing home, where it was decided that she had had pelvic infection. Recovery took place, but convalescence was prolonged.

While this patient was in the home three others were admitted, and these had normal confinements and puerperia.

CASE IV.

D, a primipara aged 23, was admitted on the day C left the home and had a normal confinement two days later. Two vaginal examinations were made by the matron. The doctor in attendance made none. There was no perineal tear. Three days later the patient developed a temperature and a severe sloughing vaginitis from streptococcal infection. She was removed to hospital, where she died ten days after the confinement.

CASE V.

E, a primipara aged 30, had a normal confinement one day after D's confinement; a perineal tear was sutured. On the seventh day after the confinement she developed a temperature of