FIG. 5.—Same fracture as in Fig. 4 three months after operation.

category; one had rheumatoid arthritis and the other was 88 years of age. Some cases classed as fair on account of shortening had excellent function; one such patient walked 8 miles at the age of 62. In Table V comparison is made with results obtained by other workers.

TABLE IV.—Final Assessment in 28 Surviving Cases

Result	Cases	Remarks
Good ..	17 (60.7%)	Can walk at least 1 mile or as far as before injury. Hip movements more than 90 degrees. No real hip or knee pain. Shortening less than $\frac{1}{2}$ in.
Fair ..	9 (32.1%)	Can walk up to half a mile. Hip movements more than 60 degrees. Shortening less than $1\frac{1}{2}$ in. Only slight hip or knee pain
Poor ..	2 (7.1%)	Unable to walk; pain + +. Stiff knee and/or hip

TABLE V.—Results Compared With Other Series

	No. of Cases	Mortality	Hospital Stay	Weight-bearing
Cleveland ..	95	12.6%	57 days	Not stated
Hammond ..	45	21%	Not stated	4 months
Evans ..	22	0	49 days	Not stated
Arden and Walley	37	12.5%	37 "	11 weeks

Conclusions

We are of the opinion that operative treatment of these fractures offers the following advantages: (a) early ambulation; (b) greater subjective comfort for the patient; (c) fewer general complications; (d) shorter hospital stay; (e) an earlier return to normal function. We do not consider that the mortality was lowered or that a more accurate reduction was maintained. These two factors might be improved with modification of the method used.

Suggested Modifications.—More blood transfusion at operation to control shock. Modification of the nail-plate: (i) four fins to prevent bending of nail; (ii) a single Egge-type slot in the plate to encourage early union; (iii) a serrated spring compression washer or lock nut to prevent the nut becoming loose, and thus prevent a varus deformity.

Summary

A selected series of 37 intertrochanteric fractures treated by internal fixation have been reviewed.

We are of the opinion that the advantages offered by this method should encourage its use in the great majority of cases of this fracture, but not as a routine.

Certain nail complications are mentioned, and modifications of the nail-plate are suggested.

REFERENCES

- Brittain, H. A. (1942). *British Medical Journal*, **1**, 463.
 Cleveland, M., Bosworth, D. M., and Thompson, F. R. (1947). *J. Bone Jt Surg.*, **29**, 1049.
 Evans, E. M. (1949). *Ibid.*, **31B**, 190.
 Hammond, G. (1948). *Penn. med. J.*, **51**, 759.
 Murray, R. C., and Frew, J. F. M. (1949). *J. Bone Jt Surg.*, **31B**, 204.

ACUTE POISONING WITH POTASSIUM BICHROMATE

BY

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Inorganic chemical poisoning is to-day probably the rarest form of food-poisoning, and therefore is likely to be overlooked. Accidental poisoning through taking potassium bichromate by mouth must be rare; few records are reported by Taylor (1934) or Glaister (1938). The apparent ease with which it occurred in the following cases illustrates that chemical poisoning must always be considered in patients presenting with unexplained acute gastro-enteritis.

Case Histories

Two people were taken suddenly ill with severe abdominal pain and vomiting 10 minutes after eating porridge. Diarrhoea occurred soon afterwards. The patients were initially distressed, but shortly after the symptoms abated they appeared little the worse for their experiences, and there have been no sequelae. The medical practitioner had noticed a blueness of their skin, and, with the history given, decided to seek advice, submitting a sample of the oatmeal for examination. On close questioning, one of the patients remarked that the supernatant fluid of the cooked oatmeal was bright yellow.

Examination of the Oatmeal.—The oatmeal (crushed oats) was seen to contain small red-orange particles. These were not evenly distributed throughout—one jar contained several, and another jar a few. The particles were crystalline and dissolved readily in water, giving a yellow solution. The oatmeal was further examined for mites, rancidity, and bacterial contamination, all with negative results. It was thought that the crystals could be those of potassium bichromate, and tests were undertaken to prove this. (1) The solution of the crystals released iodine from potassium iodide. (2) The weak solution gave a rose-pink solution with silver nitrate. (3) The dilute solution, acidified with sulphuric acid and sulphurous acid then added, produced a green colour. (4) A similar effect to No. 3 was produced by substituting alcohol for sulphurous acid and then warming the mixture. (5) The solution, acidified with sulphuric acid and treated with hydrogen peroxide, produced a blue colour due to the formation of perchromic acid;

on shaking with ether the blue colour could be transferred to the ether layer. (6) The acid solution formed a soluble magenta-coloured compound with diphenylcarbazine. Tests 5 and 6 were found to be the most sensitive.

Urine.—On routine testing of a specimen of urine from one of the victims a trace of albumin was found.

Test 6, which appeared to be the most sensitive test for chromium, was negative, but it was noted that, by using controlled urines, considerable quantities of chromium must be present before the above tests were positive. This is not an unusual finding in testing for some radicals in the presence of organic matter.

Source of Contamination.—Assurance is given that it did not occur in the victims' home. The package of oatmeal had travelled from Scotland to the South of England by parcel post, and it was known that it was necessary to repack it at a post office in Southern England, for a Post Office damage slip was affixed. With the above results and the possibility of legal proceedings, a sample was submitted for confirmation of the findings to Dr. J. H. Hamence, an expert analyst, who reported: "Potassium bichromate present to the extent of 0.25%."

Discussion

Fatalities following potassium bichromate poisoning, usually suicidal, are not uncommon, and Leschke (1934, p. 85) refers to a fatal case of suicidal poisoning in which a woman aged 21 took 15 g. of the substance. Taylor (1934, p. 548) records that the death of a woman aged 21 occurred in hospital about 24 hours after she drank 7 g. of potassium bichromate, which she had been incorrectly advised to try as a cure for neuralgia. Leschke (1934, p. 84) stated that 0.5 g. of potassium bichromate can cause serious symptoms of intoxication.

The early features are sore throat, vomiting, and diarrhoea. The urine frequently contains albumin and blood, and cases of only moderate severity may develop anuria with nitrogen retention, in spite of which the blood pressure remains abnormally low. Nervous symptoms, headache, stiffness of the back of the neck, and cramps are described. Haemorrhages into the intestinal tract, bronchi, and serous cavities may occur in severe cases. It is possible that these haemorrhages may be the outcome of a uraemia. It would seem that symptoms need not be proportional to the amount of potassium bichromate consumed, as the probable vomiting, and the time of its onset, must modify the amount of poison retained.

Sore throat was not a complaint in the cases described above. A trace of albumin was present in the urine, but there were no other features suggesting renal damage. The blue colour of the skin noticed by the practitioner in these cases is described (Taylor, 1934, p. 546) as a feature in some cases of potassium bichromate poisoning. The history of acute gastro-enteritis within so short a time of partaking of food (10 minutes) strongly suggests chemical poisoning. Staphylococcal food-poisoning is the form of bacterial food-poisoning with similar symptoms. Such cases, however, are typified by vomiting, diarrhoea, and acute prostration within two and a half to three hours, and are associated with well-recognized incriminating defects in the preparation of the food. The incidence, too, is much greater after certain foods, and excessively rare after oatmeal stored dry and eaten hot immediately after cooking.

Summary

Two cases of acute gastro-enteritis following food-poisoning by oatmeal contaminated with potassium bichromate are described. The features of chemical food-poisoning as compared with bacterial poisoning are mentioned, and the place of chemical food-poisoning in acute gastro-enteritis is considered.

Thanks are due to Dr. J. Hamence for his expert opinion, and to Dr. H. F. G. Hensel, who was first consulted by the patients.

REFERENCES

- Glaister, J. (1938). *Medical Jurisprudence and Toxicology*, 6th ed. Edinburgh.
Leschke, E. (1934). *Clinical Toxicology*. London.
Taylor's *Principles and Practice of Medical Jurisprudence*, 1934, edited by S. Smith, 9th ed., vol. 2. London.

Medical Memoranda

Dysgerminoma of the Ovary

The term "dysgerminoma" is applied to a type of solid ovarian carcinoma the histology of which is identical with that of a seminoma of the testis. The following is a report of two cases.

CASE 1

The patient, a girl aged 16, complained of feeling tired and of a lump in the right axilla. She had been told that "her tummy was sticking out." She had never menstruated. Examination revealed a large abdominal tumour and a firm gland in the right axilla. A radiograph of the chest was clear.

In March, 1947, a biopsy of the axillary gland was performed. Its centre was completely necrotic, and on section a few malignant cells were seen in one of the lymph sinuses, but it was not possible to make an exact diagnosis. A week later the abdomen was explored and a right-sided ovarian tumour attached to a long pedicle was found. There was some malignant infiltration of the pelvic floor and of the left side of the posterior abdominal wall. One or two enlarged glands were found in the mesentery. The tumour was removed by ligating and dividing the pedicle, and the abdomen was closed. The specimen measured 14 by 6 by 6 cm. and on microscopy was seen to be a dysgerminoma. In April the patient was given a course of x-ray treatment to the pelvic region and was discharged apparently quite well.

In December, 1947, a mass of secondary glands developed in the epigastrium. After x-ray treatment it regressed completely. In September, 1948, a mass of malignant glands developed in the left posterior triangle of the neck. A further course of x rays caused this to resolve. In March, 1949, a mass appeared in the central abdomen and left iliac fossa. With further x rays this disappeared. When last seen (October, 1949) the patient was very fit. She is, however, small and sexually infantile.

CASE 2

A girl aged 9 was admitted in April, 1949, six hours after she had been struck on the abdomen whilst playing. She had had severe epigastric pain and had vomited three times.

On admission the pain had largely passed off. A large mobile tumour was palpable in the lower abdomen. One pole of the tumour was tender. As her acute symptoms had disappeared, she was kept under observation and two days later laparotomy was performed.

An encapsulated tumour was found attached to a long pedicle arising from the left ovarian region. The ovary was incorporated in the medial aspect of the pedicle, but the growth was separate from it. The growth was removed by cutting across the pedicle, the ovary being left behind. One pole of the tumour was contused, presumably as a result of the injury. The growth was 14 by 9 by 6 cm. in size and on section was found to be a dysgerminoma.

The patient made an uneventful recovery from the operation and was seen from time to time in the out-patient department. Early in June she appeared perfectly well, but gave a history of an attack of colicky pain which had subsided spontaneously. Examination revealed nothing abnormal and she was told to report again in two months. However, she did not attend, and inquiries revealed that during July she had developed increasing abdominal distension and had died, presumably from metastases.