hereditary character of this form of keratoderma was emphasized by the earliest authors. Vörner recorded its existence in four generations of one family, 16 out of 40 members being affected. Cases have been reported from time to time in Europe, North and South America, and Japan. The high incidence of the disease among the natives of the small island of Meleda, in the Adriatic Sea off the coast of Dalmatia, led early observers in this locality to attach to it the name of 'mal de Meleda' and to consider it a peculiar form of leprosy. It was not until 1898, when the Viennese dermatologist Neumann visited the island, that the clinical identity of these cases with keratoderma was established. Crocker ascribed the apparently endemic character of the disease in Meleda to the result of frequent intermarriage in an isolated island community."

The pathology has been repeatedly described and no lesions apart from the hyperkeratosis have been recorded. There is a considerable variety of types of the condition, each of which is honoured with a special name—linearis, striata, punctata, diffusa, subungual, etc. However, the present case is an instance of the most common type, and the basic defect is presumably the same in all types, with the manifestations modified by unknown factors (Siemens, 1929). Siemens also notes the occasional association of the condition with other ectodermal defects.

Cockayne (1933) lists 72 reported families containing 699 affected persons. In only one instance was inheritance traced as far as the sixth generation. In 1933 Michael presented a family tree containing 68 members—31 affected and 37 unaffected—extending through six generations, and claimed that it was the most extensive one reported up to that date. Since then Huei-Lan Chung (1937) has recorded two Chinese families in whom he traced the condition through five and seven generations. His pedigree of the latter family is formidable, and was made possible, he says, only because of the Chinese manner of living, in which several generations of the family inhabit the same compound. Since Huei-Lan Chung's report I have not been able to discover any pedigrees of similar size, and this is apparently the second occasion on which inheritance through seven generations has been recorded.

The condition is apparently of universal distribution. Cockayne states: "The races in which the defect has been seen are English, Scottish, white American, German, Norwegian, Swedish, Dutch, Belgian, French, Italian, Spanish, Russian, and Japanese." To these must now be added Chinese (the cases mentioned above) and Indian (Hai, 1950).

Michael considers that "there is every reason to believe that the mutation which gives rise to the anomaly is still appearing in the race." Since my interest was first aroused in the condition I have become aware of four other affected families in the Midlands. It seems probable that the defect is more common than has been realized.

Summary

A case of the diffuse form of keratoderma palmaris et plantaris congenitalis in an infant is reported.

The family tree is given, showing direct transmission through seven generations. The mode of inheritance and the numerical incidence strongly suggest a simple Mendelian dominant.

The condition is world-wide in incidence, and is probably commoner than reports would suggest.

I am indebted to Dr. P. D. C. Kinmont for the original diagnosis and for his constant advice. The photographs were taken by Mr. Fayers, of the Derbyshire Royal Infirmary, to whom my thanks are due.

REFERENCES

- Cockayne, E. A. (1933). *Inherited Abnormalities of the Skin and its Appendages*. London.
 Hai, M. A. (1950). *British Medical Journal*, **1**, 941.
 Huei-Lan Chung (1937). *Arch. Derm. Syph., Chicago*, **36**, 303.
 Michael, J. C. (1933). *Ibid.*, **27**, 78.
 Olmsted, H. C. (1927). *Amer. J. Dis. Child.*, **33**, 757.
 Siemens, H. W. (1929). *Arch. Derm. Syph., Wien*, **157**, 392.

FALSE DIAGNOSIS OF PATENCY OF FALLOPIAN TUBES

BY

MARGARET MOORE WHITE, M.D., F.R.C.S.
F.R.C.O.G.

Gynaecologist to the Fertility Department, Royal Free Hospital; Gynaecologist, Hitchin Group of Hospitals

Among gynaecologists engaged in the study of infertility it does not seem to be well enough recognized that the kymograph does not always depict the true state of the Fallopian tubes on pertubal insufflation. A diagnosis of patency of the fimbrial lumina may be made when such is not the case. Miller (1945) wrote: "Deception may occur as a result of gas bubbling through a hydrosalpinx," but little attention has been paid to the phenomenon in this country. At a conference on infertility in London in 1950, Siegler referred to this possible means of falsely diagnosing patency.

In those cases in which bilateral hydrosalpinx exists, pelvic examination would reveal the condition and give evidence that the kymograph was misleading. When, however, there is no fluid exudate the tubes are in a flaccid state, although occluded by terminal adhesions, and nothing abnormal is palpable on examination. Were a salpingogram not taken, occlusion at the fimbrial ends of the oviducts would remain undetected.

There seems to be no certain way of avoiding the occasional misdiagnosis of patency in some cases with terminal tubal occlusion when there is no distension of the tube. The symptom of shoulder-pain following insufflation is not inevitable, as it was experienced in some of the cases in which non-patency was confirmed. Moreover, even when normal patency exists, sufficient carbon dioxide may not have been introduced to cause shoulder-pain to be registered. According to Miller (1945), 300 c.cm. of gas must be introduced to produce the symptom of shoulder-pain. I find, on the contrary, that the registration of shoulder-pain is a variable factor and may be experienced after the introduction of not more than 100 c.cm. of gas.

In some of these cases of non-patency, bilateral pelvic pain has been experienced, but others have felt no discomfort. Pelvic examination immediately after insufflation of those women who have experienced pain has revealed a tubal swelling, but by the next occasion the patient has presented herself for examination there is again nothing abnormal to be felt.

It would seem conceivable that if enough carbon dioxide was introduced on each occasion a stage would be reached when the uterus and tubes were filled to capacity and pain would occur, but in the one case in which the introduction of gas was continued for some time it was not so. Presumably enough had not been run in. Tubal peristalsis can occur in both directions

(Müller, 1944), but, even so, if a state of maximum distension had been reached severe pain would occur unless gas were able to escape via the cervix, in which case it would easily be heard.

Since pertubal insufflation is so often performed in the out-patient department and the patient is not detained, introduction of a large quantity of gas is avoided in order to provoke as little discomfort as possible.

At the time of insufflation, in two instances I made a comment that the sound heard had a hollow note.

My attention was first drawn to the condition described above in January, 1949, in Case 1. Since then I have been able to collect five further cases from January, 1949, to January, 1950.

Case Reports

Case 1.—Aged 29. Five years' sterility. Early history of tabes mesenterica. In July, 1947, normal tubal patency was diagnosed by a colleague. In October, 1948, laparotomy was performed by another gynaecologist to correct retroversion, and bilateral fimbrial occlusion was found. Salpingostomy was performed, but a post-operative salpingogram again showed fimbrial occlusion. In January, 1949, I performed tubal insufflation, and patency with peristalsis was obtained at normal pressure. Shoulder-pain was not experienced. In view of the conflicting evidence a salpingogram was taken immediately and bilateral oleosalpinx was depicted (Figs. 1 and 2). After short-wave therapy, on further insufflation in June, 1949, the kymograph (Fig. 3) again registered patency with peristalsis. Shoulder-pain was experienced. It was hoped that in view of this feature patency had occurred, but a salpingogram again showed non-patency. Recent

FIG. 1.—Case 1. Kymograph reading on January 1, 1949.

FIG. 2.—Case 1. Salpingogram taken January 1, 1949, showing bilateral oleosalpinx.

FIG. 3.—Case 1. Kymograph reading on June 2, 1949. Normal at first; later, hollow sound.

laparotomy revealed oviducts flabbily dilated at their fimbrial ends and occluded.

Case 2.—Aged 36. Seven years' sterility. History of pleurisy early in 1946 and risk of gonococcal infection, but all tests taken at the time of her husband's infection were negative. Tubal insufflation performed at a London hospital in 1946 registered normal patency. Insufflation by me in 1947 registered non-patency. A salpingogram in November, 1947, showed no tubal spill and suggested terminal tubal adhesions. In March, 1949, insufflation was again performed and a normal kymograph obtained. There was no shoulder-pain. In June, 1949, after injection of 20 ml. of opaque fluid, dilated occluded tubes were shown.

Case 3.—An Indian aged 26, with 10 years' sterility, gave a history of abdominal pain. Pelvic examination normal. In February, 1949, a normal kymograph was obtained. In April, 1949, a salpingogram showed bilateral distension and non-patency of the Fallopian tubes. The patient was subsequently admitted with a painful pelvic swelling, which subsided after a course of penicillin. Insufflation was again performed in January, 1950. A normal kymograph was obtained and shoulder-pain experienced. In March, after the prophylactic administration of penicillin and sulphonamides, the salpingogram was repeated, using a fluid medium. Bilateral distension and non-patency of the Fallopian tubes were depicted. On laparotomy in May, 1950, the terminal portions of both tubes were found closed and flabbily dilated.

Case 4.—Aged 28. One child aged 10; a miscarriage one year later at the third month; nine years' sterility. History of occasional left-sided pain. Induration and tenderness of the left parametrial tissues felt. After short-wave therapy and chemotherapy the kymograph obtained in April, 1949, was normal: no shoulder-pain, but pelvic pain felt; prophylactic penicillin given. Insufflation repeated in June, and again a normal kymograph was obtained. Pelvic pain was experienced, and immediate examination revealed a distended left tube. A salpingogram was taken in October, using a fluid medium, which showed non-patent distended tubes. In

February, 1950, at laparotomy, both tubes were flaccidly distended in their outer third and terminally closed.

Case 5.—Aged 34. Mother of three children. One and a half years' sterility. Four years before her attendance at hospital her attempts to procure an abortion resulted in injury to the bladder. She was treated in hospital for seven months on account of sloughing of the bladder. Drainage tubes were inserted in the pelvis. In October, 1948, a salpingogram showed cornual occlusion of the right tube and fimbrial distension of the left tube with questionable

FIG. 4.—Kymograph obtained in a case in which the radiograph denoted bilateral terminal occlusion.

slight spill. She conceived at once, but miscarried at the third month. In May, 1949, tubal insufflation was performed elsewhere and normal patency diagnosed. In October, 1949, a salpingogram showed no filling of the right tube and terminal occlusion of the left. Two weeks later insufflation was repeated, and shoulder-pain was experienced. A later radiograph still showed occlusion.

Case 6.—Aged 34. Eight years' sterility. Drained appendix abscess at the age of 15. Tubal insufflation was performed in September, 1948, by a colleague and normal patency and peristalsis were obtained. Shoulder-pain was not commented upon. A salpingogram in June, 1949, showed bilateral oleosalpinx. On insufflation in October, a normal kymograph was obtained. In November, with a fluid medium, a salpingogram showed terminal distension and occlusion of both tubes. Examination immediately after withdrawal of the instrument revealed distension of both tubes. In December insufflation was again carried out and a normal kymograph was obtained.

Comment

It will be seen from the foregoing examples that in a number of cases with terminal tubal adhesions investigated only by the method of tubal insufflation it is possible to believe the Fallopian tubes to be patent at their fimbrial ends when they are actually occluded.

When a state of hydrosalpinx does not exist there is no means of recognizing the condition. A hollow sound on insufflation (two cases) and bilateral pelvic pain (two cases) are suggestive features, but a diagnosis can be made only from the salpingogram.

My thanks are due to Miss G. Dearnley for permission to include in the series those cases seen at the Royal Free Hospital, and to the Radiological and Photographic Departments for the film.

REFERENCES

- Miller, N. F. (1945). *J. Amer. med. Ass.*, **129**, 243.
Müller, J. H. (1944). *Msehr. Geburtsh. Gynäk.*, **117**, 300.

[ADDENDUM.—Since the above report was written four further cases have come to light, in which insufflation was performed during the year under review. The kymograph then appeared normal, and in no case was there evidence of infection following insufflation. Conception having failed to occur, a salpingogram has recently been taken in each case, and bilateral terminal tubal distension was shown. Two cases have been operated upon and the occluded state of the tubes confirmed. One case has been insufflated again and a normal kymograph obtained, despite the appearance of the tubes (Fig. 4). Introduction of gas at constant pressure was maintained throughout nearly an entire revolution of the drum. The fluctuations remained within normal limits. In this case water was poured into the vagina and no regurgitation of gas was heard.

Medical Memoranda

Low Spinal Block in a Case of Eclampsia

Case Report

A woman aged 26, whose first child was due in May, 1950, showed in her seventh month of pregnancy (March 14) a blood pressure of 150/90 mm. Hg, and there was a haze of albumin in her urine. A fortnight later the pressure had risen to 170/110 mm. Hg, and it was decided to send her into hospital. In spite of sedatives and rest in bed her blood pressure continued to rise, and on March 31 was 200/150 mm. Hg, and an Esbach's test gave a reading of 2.5%; in addition she complained of severe frontal headaches. A Drew-Smythe catheter induction was performed on that day and a pint of liquor was withdrawn.

Labour commenced on the morning of April 4, and at 11.30 p.m., soon after full dilatation, a hand presented at the vulva. Before an anaesthetic had been started and before any manipulation had been undertaken the patient began having almost continuous fits. Immediately $\frac{1}{4}$ gr. (16 mg.) morphine and 5 ml. of 25% magnesium sulphate were given intramuscularly.

In previous discussions we had talked about the treatment of eclampsia with a caudal or low spinal anaesthetic. As, however, we lacked the apparatus and the experience for a caudal anaesthetic, we decided to give a low spinal in this case. Accordingly, the patient was put in a left lateral position and the head of the bed slightly raised. Lumbar puncture was performed in the fourth interspace and a small amount of cerebrospinal fluid, not obviously under increased pressure, escaped. No effect was observed from this procedure. "Heavy nupercaine" was selected as the agent most easily controlled by posture and having the most prolonged action. Injection was made slowly, and the response was instantaneous. The fits ceased and never recurred, the patient's breathing improved, and the cyanosis disappeared. The blood pressure fell to 150/110 mm. Hg. At this stage, after only 0.8 ml. nupercaine had been given it was decided to limit the injection to that amount, since a short period of observation showed the patient's improvement to be maintained.

The uterine contractions were augmented rather than diminished after the anaesthetic, so the prolapsed arm was gently replaced and the infant extracted by forceps. Relaxation of the perineum and outlet was most satisfactory. The child was very slightly shocked, but soon recovered without treatment. In spite of the fact that it was one month premature it made normal and satisfactory progress. Ergometrine 0.5 ml. was given after the extraction of the child, and another 0.5 ml. after expulsion of the placenta,