also be made on the skin over the median basilic and internal saphenous veins, as experience has shown that some patients give a negative reaction behind the ear and a positive one over these last-mentioned areas. The probable explanation of this is that there has been some error in the application of the reagents to the skin behind the ear, so that oxidation has not occurred. A single application of the dye may sensitize a patient, and therefore the test should be applied on every occasion that the hair is dyed.

The toxic effects of para-phenylene-diamine may be classified as local and general. The local effects vary in intensity with the susceptibility of the patient and the form in which the dye is applied to the skin. For example, it is quite a common occurrence for a patient to come for advice with a blotchy erythematous dermatitis of the neck, and sometimes of the face, and to give a history that she tried on a series of furs in a shop. Half an hour later she noticed that her neck was itchy and red, but this soon passed off. The next day the fur was delivered, and in the full pride of possession she wore it for a short period. Within an hour or two the neck became red, itchy, and inflamed. In some cases vesicles form. The dermatitis arising from an hour's exposure to a fur dyed with "para" may, if untreated, last for as long as fourteen days. If the head has been dyed, and the patient is susceptible, an acute erythematous dermatitis of the scalp rapidly develops. Vesicles and bullae may form and rupture. The dermatitis spreads to the face and neck. The scalp may become "boggy" and oedematous, and periorbital oedema is a common occurrence. The patient commonly complains of headache, nausea, vomiting, and diarrhoea. The temperature may rise to 104°, and there may be a rigor. In very acute cases albuminuria occurs. These symptoms are due to two causes: (a) toxæmia caused by the acute dermatitis; (b) poisoning due to absorption of the dye.

The treatment is prophylactic (that is, avoid exposure to the dye), local, and general. In mild cases the dermatitis may subside if a simple calamine lotion containing 2 per cent. ichthyol is applied. In acute cases the hair should be cut as near the scalp as possible, and calamine lotion with 1 per cent. ichthyol applied frequently on linen or gauze dressings, no oil silk being used. It is most dangerous to attempt to remove the dye from the hair by the use of hydrogen peroxide or sodium thiosulphate, as these measures may only intensify the symptoms. I have found that the most efficient way of reducing the oedema of the eyelids is to use the following "drops":

R. Liq. adrenalin. hydrochlor. ... .. m.viii
Sodii bichloratis ... .. gr. x
Aq. ... .. ad 3j

Misce. Sig.: Dilute with an equal quantity of warm water and use as "drops" for the eyes.

A third of a pastille dose of x rays will help to control the dermatitis. The general symptoms should be treated on the usual lines. As the majority of these cases result in legal proceedings, it is as well for the practitioner to ask the patient's permission to inform the barber who is responsible that an acute dermatitis has supervened, so that the case may be examined during the acute stage by the medical representative of the barber's insurance company.

Hair-bleaching.

Bleaching of the hair frequently precedes dyeing, for if the patient has had her hair dyed some months previously it is impossible to obtain a satisfactory coloration of hair which is grey in the proximal, green in the middle, and auburn in the distal thirds. The hair has to be made a single colour. Oxidizing agents—for example, sodium hypochlorite (which is sold as "eau de javel") and hydrogen peroxide (10 to 20 volumes)—are commonly used. The hydrogen peroxide is used in conjunction with ammonium hydroxide, as the latter removes sebum and also neutralizes any dilute sulphuric acid which may remain in the peroxide. Hydrogen peroxide has been shown by Leftwich⁵ to have little, if any, deleterious action on the hair. Potassium cyanide and oxalic acid are both used as bleaching agents; their use cannot be too emphatically condemned.

Summary.

1. Various formulæ for cold creams and vanishing creams have been considered and discussed. It has been shown that these may have an irritant effect on the skin, which may in time lead to the production of rodent ulcers and epitheliomata, and that these applications are prolific originators of comedones, acne vulgaris, and acne rosacea.

2. The formulæ of irritant applications ("wrinkle removers") have been studied, and their effect in the production of neoplasms of the skin has been discussed.

3. Formulæ for skin foods and lotions have been given, and a line of treatment for a skin ruined by the injudicious use of cosmetics has been indicated.

4. The hair dyes in common use have been briefly enumerated, special reference being made to the para-phenylene-diamine group of dyes. A brief account has been given of the signs, symptoms, and treatment of para-phenylene-diamine dermatitis.

It is my pleasant duty to acknowledge my indebtedness to Professor Dilling and Professor Hilditch of Liverpool University, and to W. E. de B. Diamond, Ph.D., for advice in regard to the problems in pure chemistry with which I have been confronted in the preparation of this paper. My thanks are also due to Mr. E. W. Lucas and Mr. H. B. Stevens for permission to publish formulæ A and B and the formulæ for vanishing cream, wrinkle removers, and the various lotions, all of which are taken from their *Book of Receipts*; also to Mr. H. S. Redgrove, B.Sc., A.I.C., and Mr. G. A. Foan, who have allowed me to make full use of their book *Blonde or Brunette?* the standard book on hair dyes and hair dyeing (Heinemann (Medical Books) Ltd.).

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A CASE OF RUPTURED OVARIAN PREGNANCY.

BY

E. L. GRAFF, M.A., M.B., B.Ch. CANTAB.,
LATE OBSTETRIC RESIDENT, GUY'S HOSPITAL.

THE case here recorded provides definite proof of a pregnancy occurring in the ovary. E. W. Riches,¹ in a recent publication, relates that "Lockyer, reviewing the literature from 1910 to 1917, found records of 22 genuine cases. Prior to 1910 there were recorded, according to a German estimate, 33 cases, and according to an American estimate only 19. Since 1917 a further 29 cases have been recorded

FIG. 1.—A, Corpus luteum; B, chorionic villi embedded in blood clot; C, amniotic cavity; D, blood extravasated through wall of cyst.

by various authors, making a total of 84 cases in all." This case, with Riches's, brings the total of recorded cases to 86.

N. A., aged 35 years, had had three previous normal pregnancies, her youngest child being 4 years of age. Her periods occurred at two- to three-weekly intervals, and lasted three days.

A period finished on April 26th, 1928, and on May 26th she had a sudden attack of pain, simulating labour pains, in the hypogastrium and passing through to the back, and which lasted thirty minutes. Eleven days later, on June 6th, she experienced a second attack, which continued on and off for two days, gradually lessening in intensity till she came to Guy's Hospital and was admitted on June 8th.

On admission the temperature was 98.4° F., respirations 20, and pulse 105 per minute. The general condition of the patient was poor; the haemoglobin was 46 per cent. She complained of occasional slight pain below and to the left of the umbilicus. On

Fig. 2.

palpation there was guarding of the abdominal muscles over the right, and tenderness in both iliac fossae. On vaginal examination the external os was found closed, the uterus was anteverted and normal in size and consistency. Through the right lateral fornix a smooth lump the size of a tangerine orange was felt in the position of the right ovary. A scanty clear watery discharge was present, but there was no evidence of any uterine haemorrhage whatsoever. A diagnosis of ectopic gestation was made.

On June 15th the patient began to lose blood per vaginam; by the 18th, however, her general condition had greatly improved, and the haemoglobin had risen to 64 per cent.

A laparotomy was performed on June 18th. On opening the abdomen through a right lower paramedian incision the peritoneum was found to contain blood clot which filled the uterovesical pouch. The uterus, left ovary, and tubes were perfectly normal. Attached to the lateral half of the right ovary was a firm blood clot the size of a small tangerine orange. The ovary was cut across, and the right half, with the attached blood clot, removed. The remaining clots were cleared out from the peritoneal cavity, and the abdomen closed without drainage. The patient made an uninterrupted recovery, and was discharged on July 9th.

Fig. 3.

Description of Specimen.

The specimen consists of a spherical mass 5 cm. in diameter, and having half the ovary attached to its outer surface. This outer surface is for the most part smooth, and formed by a membrane in which ramify several small blood vessels. Showing through this covering is dark blood clot, and in one place (opposite to the ovarian tissue) there has occurred a rupture of the sac with haemorrhage on the exterior.

Examination of the cut surface (Fig. 1) shows quite definite ovarian tissue, containing at its lower edge a recent corpus luteum. The luteal cells are thinned out over the mass of blood clot, which can, in fact, be aptly described as haemorrhage

occurring into a corpus luteum cyst. In the centre of the clot is a somewhat irregularly shaped amniotic cavity filled with a homogeneous transparent substance, but unfortunately revealing no trace of any embryo. Dotted about in the blood clot between the wall of the sac and the amniotic cavity are several small white areas, and these, on microscopical examination, are seen to consist of typical chorionic villi (Fig. 2). Fig. 3 shows the characteristic arrangement of luteal cells and the wall of the corpus luteum in direct continuation with the wall of the cyst.

There seems to be no doubt from the specimen that this is a case of pregnancy following impregnation of a Graafian follicle, and that the developing corpus luteum was thinned out by the growing sac. The two attacks of severe pain can be explained by a consideration of the specimen. The first doubtless occurred when the haemorrhage took place into the cyst and the gestation sac; the second when the distended cyst ruptured into the peritoneum.

I have to thank Dr. J. J. Conybeare and Mr. A. J. McNair for permission to publish this case, Dr. J. W. Shackle for preparation of the photomicrographs, and Mr. R. C. Brock for assistance in compiling the description of the specimen.

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THE ADVANTAGES OF A PORTABLE THERMOSTAT FOR BLOOD TRANSFUSION.

BY

GEOFFREY SHERA, M.A., M.B., B.Ch.CAMB.,

CONSULTING PATHOLOGIST TO THE EASTBOURNE HOSPITALS AND TO THE EAST SUSSEX COUNTY COUNCIL.

REACTIONS after blood transfusion can be negligible, mild, moderate, or severe; they are generally regarded as unpleasant for the patient, but otherwise harmless unless due to some form of incompatibility, a contingency not, however, under discussion in this article. Whether a reaction after transfusion has any beneficial effect is a moot point. Protein shock, as we know from Vines's work,¹ does in fact shorten the coagulation time, and a brisk reaction after blood transfusion may act similarly. I know from experience that a single transfusion had a continued and most beneficial action in a case of purpura haemorrhagica in shortening the coagulation time and bleeding time and increasing the platelets, but this particular transfusion was unaccompanied by any appreciable reaction beyond a very short rigor lasting seven minutes and a rise of only 1° F. On the other hand, I have seen reactions so serious as to endanger life from the point of view of myocardial disturbance in splenic anaemia with haematemesis, in secondary anaemia, and in pernicious anaemia. After performing a number of transfusions I have come to the conclusion that these severe reactions, which are characterized by (1) pyrexia over 103° F., (2) a severe rigor lasting twenty minutes or longer, (3) myocardial disturbance, with arrhythmia and feeble pulse, requiring stimulants, and (4) prolonged after-sweating, were closely associated with failure to warm the blood sufficiently beforehand, and to keep it sufficiently warm during the transfusion. One case in particular impressed me in this way.

A man with very severe, sudden, and repeated haematemesis from duodenal ulcer required two transfusions on successive days. At the first, owing to the urgency of the situation and to help from assistants none of whom had ever seen a transfusion, the blood was kept far from warm; the result was a severe reaction, which was probably rather dangerous to the heart. On the next day, when a second transfusion was given, the blood was kept warm throughout the operation in warm water periodically and persistently renewed. The result was a reactionless transfusion with excellent results.

Reviewing my first fifty transfusions, I find a record of severe reactions mostly among the earlier ones, but no less than 20 per cent. showed severe rigors lasting twenty minutes or longer. In 4 per cent. there were severe and really dangerous cardiac disturbances after transfusion, associated with the rigors and prolonged for some hours afterwards. The onset of these reactions was thirty to forty-five minutes after the transfusion. Pyrexia over 103° F. occurred in 14 per cent., and prolonged after-sweating also in 14 per cent.