that there is an increase in the incidence of gingivitis with increase in age), and edentulous subjects—who, as he points out, are not susceptible—are included in the total. Exclusion of the latter brings the incidence to 30.5%, but this figure is uncorrected for age. For those under 30 years the incidence was 17.7%. In the present investigation the incidence of gingivitis among airmen and airwomen under 30 years (including edentulous subjects for the sake of comparison) was found to be 32.7%. The age-corrected incidence of gingivitis among those susceptible in the R.A.F. is approximately 40%.

Influence of Social Status.—The figures in Table VII show that there is a correlation between the incidence of gingivitis and pre-Service social status, the condition being less prevalent in the higher-income groups. It is beyond the scope of this paper to discuss the reason for this, but both dietetic factors and differences in personal hygiene may be involved.

Incidence in Various R.A.F. Trades.—The incidence of gingivitis among air-crews is significantly less than that among the rest of the R.A.F., due correction having been made for age differences; but it should be noted that only specially selected air-crew personnel were posted to the stations which were examined. On the other hand, the incidence among those engaged in messing and in the preparation of food is significantly higher than among the remainder, excluding air-crew. If the condition is infectious this finding is obviously important.

Whether the differences in the incidence of gingivitis among personnel engaged in the different R.A.F. trades are due to specific working conditions it is difficult to say; but the fact that different trades recruit their members in different proportions from the various social classes must certainly play a large part in producing the variations which have been found. This supposition is supported by the fact that there seems to be no relation between the incidence of gingivitis and length of service in the Royal Air Force.

Summary

A survey of the gums of random samples of airmen and airwomen from each of four Royal Air Force stations has been carried out.

The incidence of gingivitis was approximately 40%. It was higher among those susceptible in the older age groups and in those recruited from the poorer social classes. Length of service in the R.A.F. did not seem to influence the incidence of gingivitis. Significant differences were found among the various trade groups, the incidence being lower among those who were more highly paid.

The reasons for these differences have been discussed.

Thanks are here recorded to Air Marshal Sir H. E. Whittingham, who initiated the investigation and who allowed the extensive facilities necessary for carrying it out; to Air Commodore T. McClurkin, Director of Hygiene, for his help and encouragement; to Dr. Bradford Hill, for advice concerning the sampling and for his assistance in the analysis of the results; and to Dr. B. S. Platt for much information, help, and encouragement. Thanks are also recorded to the commanding officers, medical officers, and dental officers who were concerned in the organization of the experiments.

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RUPTURE OF AORTIC ANEURYSM INTO THE DUODENUM

BY

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One of the rarest causes of fatal intestinal haemorrhage is rupture of an aortic aneurysm into the gut. Howland and Sprockin (1943) reported a case and found 4 similar cases recorded since 1936, when Kampmeier (1936) discovered 9 cases in the literature and contributed another. These 15 cases are included in their summary of 520 cases of abdominal aneurysm recorded up to Dec., 1942. Four aneurysms of the abdominal aorta—two rupturing into the retroperitoneal tissues, one into the duodenum, and a small asymptomatic one—have

been seen. The present case of haemorrhage into the duodenum is worthy of record, and the diagnosis was suggested before necropsy.

Clinical History

The patient, a housewife aged 64, complained of aching pain referred to both sides of the abdomen and of frequency and scalding on micturition. These symptoms, of two to three months' duration, were not incapacitating. On examination a mass the size of a cricket ball was felt to the left of the umbilicus. This was slightly fluctuant and somewhat tender, and pulsated with the heart-beat. Special examinations failed to contribute further to the diagnosis, especially as between a pancreatic cyst and an abdominal aneurysm. The urine contained *B. coli*, the blood Wassermann reaction was negative, and a fractional test meal revealed complete achlorhydria. A radiograph of the abdomen disclosed no abnormality, and with a barium meal there was no deformity of the stomach and the meal passed normally through the intestine. A urinary diastase index of 10 was normal. After rest and treatment for cystitis for three weeks the patient went home. Ten weeks later she had a very severe haematemesis and was readmitted in extreme collapse. After transfusion of three pints of blood her blood pressure rose from 60 to 85 mm. Hg systolic, but she continued to vomit blood and died in seven hours.

Pathology

Bright red blood, often in large clots, filled the greater part of the stomach and small intestine and reached to the hepatic flexure. Where its horizontal part passed into the ascending part the third part of the duodenum was lifted forwards by a globular mass adherent to its posterior aspect and to the left side of the aorta. Even after fixation this measured 6.5 by 6.5 by 4 cm. At the same level there was a vertical tear with dark red and slightly everted edges in the mucosa of the posterior duodenal wall measuring 1.5 by 0.5 cm. and communicating with the aorta through the cavity of the globular mass. This was filled with blood-clot, some of which was old and laminated, though little of it was organized. The walls were in few places more than 0.5 cm. in thickness, but there was considerable fibrosis in the surrounding retroperitoneal tissue. The entrance to this sac from the aorta was round and 1.5 cm. in diameter, while the wall of the aorta up to the very margins of the defect appeared free from stretching or scarring. The orifice of the inferior mesenteric artery was carried into the lower margin of the entrance of the sac, but its lumen contained no thrombus. The renal arteries lay above the sac and were not involved. From about an inch above the aneurysmal sac to its iliac bifurcation the intima of the aorta showed confluent hyaline plaques containing very little calcium and no grumous material. There was no intimal scarring in the region of the arch, nor adventitial thickening.

Numerous sections of the aorta showed only a little adventitial thickening and a very occasional infiltration by mononuclear cells around the vasa vasorum. The elastica of the media, even at the edge of the aneurysm, was not demonstrably altered by the fibrosed atheromatous plaques. Near the margin of the aneurysmal defect the adventitial fibrous tissue increased, and distinctive infiltrations of mononuclear cells, including plasma cells, occurred around thickened vasa vasorum and extended inwards into the media. In the disorganized wall opening into the aneurysmal sac itself the changes were less specific, plasma cells were numerous, but proliferating fibrous-tissue elements and large mononuclear cells, some containing haemosiderin, were also present, and elastic elements had almost entirely disappeared.

Complete routine histology from all organs revealed nothing of further interest apart from portal cirrhosis which was not actively progressive, the absence of the lesions of Banti's disease from the spleen, and the non-specific nature of bilateral apical lung scars.

Probably almost all these aneurysms are due to syphilis. Specific changes may be limited to small areas of the aorta, and only after very detailed study can atheroma, acute bacterial aortitis without focus elsewhere (Rappaport, 1926), or aortitis of undetermined origin (Sproul and Hawthorne, 1937) be considered. Atheroma was not unusual or excessive in the present case. The plaques were largely fibrosed, and, while the changes in the wall at the actual site of the aneurysm cannot now be known, it is reasonable to believe that the mural defect was secondary to changes in the vasa vasorum similar to those noted in the thickened adventitia and in the media at the margin of the aneurysm. Syphilitic aortitis is often the cause of an aneurysm; atheroma is much more common, and yet it is difficult to obtain evidence that it is ever responsible.

In 900 necropsies on patients over 30 years of age with complete histology of all organs, 15 thoracic and 4 abdominal aneurysms were found to be due to syphilis and only 3 were dissecting aneurysms secondary to medial necrosis. In the same material a further 29 cases showed changes which justified

a diagnosis of syphilitic aortitis. These changes were infiltrations by a few plasma cells around the vasa vasorum and often a little adventitial fibrosis. This gives an incidence in our material of 2.1% for syphilitic aortic aneurysm and 5.3% for syphilitic aortitis. These figures would be approximately halved if all necropsies at all ages and those limited to the cranium were included. An incidence of 1.7% and 2.7% is given by Bryant (1903) and by Osler (1905) respectively for aortic aneurysm, but reviews of the subject ignore the age composition of the necropsy material. The negative Wassermann in the present case need occasion no surprise, for in just over half the recorded cases the reaction was negative.

Summary

In 900 complete necropsies on patients over the age of 30, 15 thoracic and 4 abdominal syphilitic aneurysms and 29 cases of syphilitic aortitis were found. A case of rupture of an abdominal aneurysm into the duodenum is reported.

I wish to thank Dr. F. M. B. Allen for clinical notes on this case.

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Medical Memoranda

Rupture of Rectus Abdominis as a Complication of Pregnancy

A paper by Mr. Rufus Thomas in the *Journal* of July 31, 1943 (p. 136), and a letter from Dr. Nora Keevil published on Aug. 21, 1943 (p. 245), drew my attention to the rarity of rupture of the rectus abdominis as a complication of pregnancy. I therefore thought that it might be worth while publishing the record of a case which I treated before joining the Forces.

Mrs. A., aged 37, was admitted to hospital at 9.25 p.m. on May 14, 1941. She was a 6-para, whose five previous pregnancies had ended in two premature labours (both infants alive and well) and three abortions. Present pregnancy: L.M.P. Oct. 10, 1940 (31 weeks' duration at time of admission). She had been well, apart from some chronic bronchitis, until four hours before admission, when she was seized with a sudden pain in the upper right quadrant of the abdomen. The pain remained constant. She vomited once. There was no vaginal haemorrhage or discharge. Her doctor had sent her to hospital with a diagnosis of ? ovarian, ? fibroid, ? appendix.

When examined in hospital the uterus was found to correspond to a period of amenorrhoea. There was a hard tender mass to the right of, and separate from, the uterus. It was deep to the rectus muscle, and was all above the umbilicus. T. 99°; P. 104; R. 28. Laparotomy was decided upon. Diagnosis: acute abdomen. Nature of tumour not diagnosed.

Under general anaesthesia a right paramedian incision revealed a large haematoma in the sheath of the right rectus muscle and deep to the muscle. The muscle fibres were torn opposite the tip of the ninth costal cartilage and the terminal branches of the deep epigastric were torn across. The clot was evacuated and the bleeding vessels secured. The peritoneum was opened and found normal; it was then closed. A corrugated rubber drain was put into the rectus sheath and the wound closed. Apart from some vaginal bleeding the day after operation, convalescence was uneventful. She was discharged on June 13—30 days after operation. She reported to the antenatal department on June 24, and was found to have bronchitis and albuminuria. She was readmitted to hospital, and remained there till full term. She had a normal delivery of a female infant weighing 6 lb. 10 oz. on July 21. She was finally discharged on Aug. 1. Mother and infant were both well.

S. WILBERFORCE LIGGETT, M.B., F.R.C.S.Ed.,
M.R.C.O.G.

Medical and surgical self-adhesive plasters now contain a proportion of synthetic rubber. Their life continues to be adequate for all reasonable requirements, but they cannot be guaranteed to withstand storage over long periods. The Medical and Surgical Plaster Makers' Conference advises dealers to rotate their stocks regularly to eliminate the possibility of goods lying on shelves. Stock which has not been turned over may deteriorate and cannot be replaced or credited by the manufacturers.

Reviews

NUTRITIONAL DEFICIENCIES

Nutritional Deficiencies: Diagnosis and Treatment. By John B. Youmans, M.D., assisted by E. White Patton, M.D. Second edition. (Pp. 389; illustrated. 30s.) London: J. B. Lippincott Company.

This book was written essentially for clinicians, and during the 18 months between the appearance of the first edition and the preparation of the second, little work applicable clinically has appeared. The additions to the book include the changes in the eye in vitamin A deficiency and the use of blood vitamin A determinations. The chief parts rewritten are those concerning the diagnosis of thiamine, nicotinic acid, vitamin C, and other possible nutritional deficiencies. The table of the recommended allowances of calories, protein, calcium, iron, vitamins A, B, C, D, riboflavin, and nicotinic acid of the Food and Nutrition Board of the National Research Council has been added. Though it was recognized that these were probably generous, it was also recognized that in clinical medicine a liberal factor of safety is desirable. A most valuable summary of the vitamins and the laboratory diagnosis of deficiency diseases is given at the end of the book. Section 1 gives a tabular summary of the vitamins A, B, nicotinic acid, riboflavin, C, D and calcium, E and K, their nature, function, dietary source, pathology, clinical expression, diagnosis, treatment, and common units of measure. Section 2 gives the principal dietary sources of the essential food factors (including the vitamins, calcium, iron, iodine, and protein). Section 3 deals fully and practically with the diagnosis of deficiency diseases by laboratory methods. The book is well printed and strongly bound.

SPANISH MEDICAL MONOGRAPHS

Diagnóstico y Tratamiento de la Epilepsia Genuina. By J. J. López Ibor. Colección Española de Monografías Médicas. Barcelona. 1943.

Enfermedades no Ulcerosas del Duodeno. By F. Gallart Monés and E. Vidal Colomer. Colección Española de Monografías Médicas. Barcelona. 1944.

These two publications are Nos. 31 and 32-3 in a series of monographs on special medical subjects under the general editorship of Dr. J. Puig Sureda. The first, by Prof. López Ibor of the Cajal Institute, is a short survey of present knowledge of true epilepsy and its various manifestations. The author refers with a certain reserve to the diagnostic value of electroencephalography. Methods of treatment are briefly summarized in the last chapter. Although the author has evidently read widely in his subject and cites many other writers, no references to sources are given, and this detracts from the value of an otherwise useful and concise work. The second monograph, on non-ulcerative diseases of the duodenum, opens with discussions of anatomical and physiological considerations, radiological technique, and the normal duodenum. The following conditions are then considered: duodenitis, duodenal stenosis, chronic duodenal stasis without stenosis, periduodenitis, duodenal diverticulosis. There follow chapters on pathological anatomy, atypical placement, deformities of extrinsic origin, tumours, syphilis, and tuberculosis.

A novel feature of this series of monographs is that each one contains an appendix of signed "Practical Notes on Diagnosis and Treatment." The reviewer surmises that the main object of these is to lead the eye of the reader to the interleaved advertisements, which do not appear in the monograph itself.

ASPECTS OF INDUSTRIAL MEDICINE

Industrial Medicine. The Practitioner Handbooks series. (Pp. 202. 16s.) London: Eyre and Spottiswoode. 1944.

General practitioners should visit factories so as to be able to understand more clearly the working conditions of their patients, and it is for such that this book has been published. But the title is misleading: it is not a comprehensive survey of the field of industrial medicine but rather a series of essays skirmishing lightly with certain aspects of the problem, for which the price is rather on the high side. In an introduction Sir David Munro rightly stresses the need for collaboration between practitioners and factory doctors; and the succeeding chapters, each written by a separate author, give the practitioner some insight into the work of the industrial medical officer.