was present and was probably actively expanding, fits occurred only when the serum calcium fell. It is of further interest that each of the two causal factors contributed recognizable features to the pattern of the attacks.

Summary

A case is described with a focal brain lesion and parathyroid deficiency in which fits of the focal pattern expected from the brain lesion occurred only when the serum calcium was lowered.

Our thanks are due to Mr. R. G. Macbeth and Dr. Frank Ellis for the opportunity of studying this case.

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FAILURE OF PENICILLIN TO PREVENT POST-OPERATIVE CHEST INFECTION

BY

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Penicillin and other antibiotics have been widely used in recent years in an attempt to reduce the incidence of post-operative chest infection. There has, however, been considerable doubt about the efficiency of penicillin in reducing the incidence of these complications when given prophylactically, and many authors have pointed out that they still occur, despite advances in surgery and anaesthesia and the use of antibiotics.

Hasslinger (1956) reports a striking series of 443 patients who underwent partial gastrectomy. Of these, 153 were given prophylactic penicillin. The number of patients with post-operative febrile bronchitis was 23 in the penicillin group and only one in the group who were not given any prophylactic antibiotics. Again, McKittrick and Wheelock (1954) reported on a series of 60 patients submitted to gastrectomy; 36 were given prophylactic antibiotic coverage without any advantage being gained by its use.

This paper describes a clinical investigation undertaken in an attempt to assess the value of penicillin given prophylactically for the prevention of post-operative chest infections.

Methods

For 18 months patients undergoing operations in alternate months were given an injection containing procaine penicillin G, 300,000 units, crystalline penicillin G, 100,000 units, and dibenzylethylenediamine dipenicillin G, 200,000 units, at the same time as the pre-operative injection. Patients operated on in the intervening months received no prophylactic penicillin.

Emergencies were excluded from the series. Most of these emergencies required antibiotics for conditions other than chest infections. All cases requiring gut resection, or considered to need antibiotics by mouth for any reason other than chest complications, were also excluded, as were patients who were given antibiotics post-operatively for threatened or established peritonitis. All other patients were included in the investigation, a careful note being made of their history of bronchitis and their smoking habits.

Physiotherapy was standardized for both groups, being given as a routine before and after operation. Any chest infection which did develop was treated on its merits, antibiotics being prescribed when indicated.

The investigation was essentially a clinical one relying primarily on clinical and not *x*-ray assessment of the chest condition of the patients. All patients were examined before operation and daily afterwards for three days. When a severe infection normally warranted a radiograph of the chest it was done, and all cases diagnosed clinically after operation as atelectasis or consolidation were verified by chest films. It was not thought necessary to rely on films to assess the pre-operative chest category in the absence of physical signs.

Estimation of what constitutes a post-operative chest infection is not easy. Following the procedure used by Ellis and Shooter (1952), patients were placed before and after operation into one of the following five categories: group 1, normal; group 2, with cough, but without sputum or physical signs; group 3, with cough and sputum, but without physical signs; group 4, with cough, sputum, and physical signs of infection; or group 5, with a definite pulmonary lesion such as consolidation or collapse.

Patients were regarded as having a post-operative chest infection if, after operation, there were respiratory signs and symptoms that were not present before operation. A change of one step between pre-operative and final post-operative chest grouping was considered to indicate a mild post-operative chest infection, whereas a patient whose post-operative chest category was two or more grades worse was assessed as having a severe post-operative infection.

Results

The particulars of patients included in this investigation are given in Table I, which shows that in respect to the items recorded the two groups were comparable.

TABLE I.—*Particulars of Patients in the Investigation*

	No. of Patients	No. with History of "Bronchitis"	No. of Smokers	No. of Females	Average Age
Penicillin series ..	219	21	90	104	42
No penicillin ,, ..	221	28	92	106	38

Briefly, the main operative procedures undergone by the patients in the two groups were: (1) hernia operations of all kinds; (2) gall-bladder and common-duct procedures; (3) interval appendicectomies; (4) laparotomies, excluding gut resections; (5) operations on the sympathetic nervous system; (6) thyroidectomies and other general surgical procedures on the head and neck; (7) general surgical procedures on the limbs, such as ligation of varicose veins; (8) minor operations on breast and chest wall; and (9) minor ano-rectal and bladder procedures.

The complete results are given in Table II, which shows the correlation between the pre-operative and post-operative grading. The numbers between the heavy lines are those of patients with a mild (one-stage) post-operative infection, the numbers printed in italics are those with a severe (two stages or more) post-operative infection. It will be seen that an appreciable number of patients in each group had a lower grading after the operation. The results shown in Table II are summarized in Table III. A study of this table shows that the penicillin group did in fact do very slightly better than the control group, but that the difference was exceedingly small, and a statistical test shows that it could have easily occurred by chance.

On further analysis these results were shown to hold good if the comparison was applied separately to smokers and

TABLE II

Pre-operative Grading	Penicillin Group						No-penicillin Group					
	Post-operative Grading						Post-operative Grading					
	1	2	3	4	5	Total	1	2	3	4	5	Total
1	133	12	*14*	*5*	*5*	169	142	18	*17*	*9*	*2*	188
2	8	6	1	*3*	—	18	5	6	2	*2*	—	15
3	3	1	7	—	—	11	2	1	8	3	—	14
4	2	—	2	15	2	21	0	—	1	3	—	4
5	—	—	—	—	—	—	—	—	—	—	—	—
Total	146	19	24	23	7	219	149	25	28	17	2	221

non-smokers. It cannot be concluded from these figures that penicillin reduces the risk of post-operative chest infections when given immediately before operation.

TABLE III

	Penicillin	No Penicillin
Severe post-operative chest complications	27	30
Mild post-operative chest ,,	15	23
No change post-operatively	161	159
Post-operative improvement	16	9
Total	219	221

Summary

An attempt has been made to assess the value of penicillin given to prevent post-operative chest infection. Comparing two similar groups, one given penicillin before operation and one not, no evidence has been obtained that penicillin is useful for this purpose.

I am indebted to Dr. R. A. Shooter for advice during this investigation and the preparation of this paper, also to Mr. M. P. Curwen for statistical assistance. I also thank many of the resident surgical staff at the Bridgend General Hospital for their willing co-operation.

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PRIMARY AMYLOIDOSIS PRESENTING WITH A CONFUSING CLINICAL PICTURE

BY

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It is well known that primary amyloidosis closely resembles other diseases. It can affect most organs, giving rise to a clinical picture which is often indistinguishable from that produced by a more common disease. When several unrelated organs are affected multiple diagnoses are often made.

The heart by itself or in company with other organs is most commonly involved, such cases usually presenting with congestive heart failure (Eisen, 1946; Lindsay, 1946). The picture may simulate that of failure due to cardiac ischaemia or constrictive pericarditis (Mathews, 1954), but often no obvious cause of failure is found.

Liver disease, often suggestive of cirrhosis, is a frequent mode of presentation. Nephrosis is another common presenting syndrome (Mathews, 1954). The alimentary tract is also a frequent site of infiltration, and a diagnosis of carcinoma may be made in these cases (Koletsky and Stecher, 1939). A sprue-like picture also occurs sometimes (Steinhaus, 1902; Golden, 1945; Adlersberg and Schein, 1947; Schein, 1947; Finley and Adams, 1948). Carcinoma of the lung (Koletsky and Stecher, 1939; Dirkse, 1946) and even of the bladder have been simulated by this disease on occasion. Arthritis and osseous disease have also been reported (Mathews, 1954). Peripheral neuritis is frequently present (De Navasquez and Treble, 1938; Götze and Krücke, 1941; Finley and Adams, 1948), but is often mild and apt to be missed.

The present case is of interest, because it prompted three different diagnoses, besides peripheral neuritis, before the true nature of the disease was established.

Case Report

The patient, a man aged 50, had had no illnesses of note until 1955, apart from a duodenal ulcer for which a gastro-enterostomy had been performed in 1942. In August, 1955, he developed a sensation of food sticking in the epigastrium after meals, with regurgitation of food and anorexia. He was admitted to a hospital, where hepatomegaly was noted. A barium-meal examination revealed a rigid stomach, suggestive of carcinoma. Gastroscopy showed a rigid mucosa and absent pyloric peristalsis. A diagnosis of carcinoma of the stomach was made, but subsequent laparotomy failed to confirm this. Liver biopsy taken at the time was thought to show a pericellular fibrosis. He was sent to a convalescent home in January, 1956, where he developed swelling of his legs with pain and numbness in his left foot and an increase in the size of his abdomen. He attended the out-patient department of the Middlesex Hospital in March, 1956.

On examination he appeared to be wasted, with early clubbing of the fingers, dilated and pulsating neck veins, gross hepatic enlargement, considerable ascites, and oedema of both legs, scrotum, and anterior abdominal wall. The heart appeared to be of normal size, gallop rhythm was not heard, and there were no significant cardiac murmurs. A tentative diagnosis of constrictive pericarditis was made, and he was admitted on March 10.

Investigations.—The venous pressure was 160 mm. of blood, the circulation time (arm–tongue) 30 seconds. The electrocardiogram showed a low-voltage curve with T wave inversion over the left ventricle, suggestive of pericardial change. *X*-ray examination of the chest showed a slightly enlarged heart, with no pericardial calcification, which pulsated normally on screening. The urine contained a variable quantity of protein from day to day (1–14 g. per litre), but Bence Jones proteose was not present. The haemoglobin was 103% (Haldane) and the white-cell count was normal. The total plasma proteins were 4.5 g. per 100 ml. (albumin 2.1 g., globulin 2.4 g.). The serum bilirubin was 0.6 mg. per 100 ml.; serum alkaline phosphatase 6.2 K–A units per 100 ml.; and serum acid phosphatase 7.2 K–A units per 100 ml. The flocculation tests were all within normal limits. The bromsulphthalein excretion was grossly impaired. The blood urea level was 29 mg. per 100 ml., and the serum cholesterol 260 mg. per 100 ml.

After consideration of these results the diagnosis of constrictive pericarditis was changed to one of severe parenchymal liver disease associated with congestive heart failure of unknown aetiology.

On closer inquiry into the patient's social history, it was found that he had been a wine-waiter for 20 years, and that for some years before the onset of his symptoms his alcohol intake had been excessive and his diet inadequate. This, together with some of the biochemical findings, suggested a diagnosis of portal cirrhosis. The symptoms and signs in the left foot were thought to be those of peripheral neuritis.

The previous liver biopsy was then reviewed and the possibility of amyloid disease was suggested. The section, however, showed so much autolysis that histological diagnosis was uncertain. A Congo-red uptake test was positive, the one-hour sample containing only 30% of the dye in the four-minute sample, with only a trace in the urine. A further liver biopsy by needle confirmed the diagnosis of amyloid disease.

While investigations were being carried out the patient was treated on the usual lines for congestive heart failure, with digitalis and diuretics. This was only moderately successful. Cortisone therapy was contemplated, but the patient died on April 3, before this was begun.

Post-mortem Findings

At necropsy bilateral pleural effusions, gross ascites, and a small pericardial effusion were found. The heart was slightly enlarged and the myocardium was of a waxy consistency.