—in one on the first day and in two after the dose had been greatly increased. Slight looseness of the bowels, not severe enough to call for cessation of treatment, was noted in four patients. In febrile patients with concentrated urine, an appearance highly suggestive of bilirubinuria was encountered and a positive reaction was obtained with the methylene-blue and nitric-acid tests. This result was found to be a fallacy, however, as similar reactions were given with a suspension of H.P.C. in water.

Summary

A cinchoninic acid derivative, 3 - hydroxy - 2 - phenyl - cinchoninic acid (H.P.C.), has been used in a small series of patients.

Fever and acute arthritis were speedily relieved in rheumatic fever.

Results in polyarteritis nodosa were equivocal.

The most striking effects in our series were obtained in three patients with scleroderma, a disease hitherto not responsive to any known treatment. Improvement occurred in all cases, as shown by the histological examination of biopsy specimens obtained before and after treatment. The results were striking and have so far been maintained in one case, but were only temporary in two.

Very slight and inconstant improvement followed the administration of H.P.C. in chronic lupus erythematosus, but was not confirmed by histological examination.

Toxic effects were infrequent and less severe than those which may follow the use of sodium salicylate, and consisted in slight nausea, diarrhoea, and, more rarely, vomiting.

We are grateful to Professor J. W. McNee, whose personal association with the original group of workers in Johns Hopkins Hospital, Baltimore, made this investigation possible, for his kind offices in arranging the necessary supplies through Dr. F. Wrigley, of Roche Products, Ltd., and for his continued interest, help, and advice.

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The new flying-spot microscope is a topsy-turvy instrument invented by Professor J. Z. Young and Mr. F. Roberts (*Nature*, February 10, p. 231). It works backwards. Normally light passes through a specimen into the objective and eyepiece, and the observer applies his eye and scans the field of view, looking at whatever interests him in it. In the new microscope, a narrow beam of light enters the eyepiece, passes down the tube and out through the objective, to be concentrated on a tiny bit of the specimen, through which it is filtered to a multiplier photocell—which corresponds to a stationary eye which is letting the light scan the field of view for it. A very bright light from a television-type cathode-ray tube provides the light spot, which rapidly and systematically scans the whole cross-section of the eyepiece; the microscope converts this to a rapid point-by-point scan of the specimen under the objective, and the photocell, recording the point-by-point change in brightness, builds up on a further television screen a vastly enlarged picture of the specimen. This new instrument promises greater resolution, greater contrast without staining, ultra-violet "vision," and quantitative analysis of the specimen.

SIDE-EFFECTS OF CHLORAMPHENICOL AND AUREOMYCIN, WITH SPECIAL REFERENCE TO ORAL LESIONS*

BY

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[WITH SPECIAL PLATE]

With the growing use of antibiotics the side-effects of treatment with these drugs are becoming more important. They are negligible with penicillin, but are of some significance with streptomycin. They are more frequent with the use of chloramphenicol and "aureomycin," though they are not of a serious nature. The subject has been briefly mentioned by various authors, but a more comprehensive study has been made by Harris (1950). As the use of chloramphenicol and aureomycin is rapidly increasing, a survey of these side-effects seems to be justified. The frequency and intensity of oral changes also give a unique opportunity of studying the mechanism of some common oral lesions. Recently Williams (1950) described 12 cases of severe oral lesions in a group of approximately 200 patients treated with chloramphenicol. Chloramphenicol and aureomycin (Tomaszewski, 1951) also cause the disappearance of the red fluorescence of the tongue which is seen in normal people and which is due to porphyrin production by bacteria.

This survey has been based on observations of 126 cases treated with these two substances in various wards of the Royal Infirmary of Edinburgh.

The Investigation

Clinical observations were made on the side-effects of chloramphenicol and aureomycin in patients suffering from various infective conditions. In each case bacteriological examination showed that the pathogenic organism was sensitive to both substances.

To investigate the immediate effect of the antibiotics on the bacterial flora and epithelium of the tongue, scrapings of the tongue were made every two or three days in all cases before, during, and for one to three weeks after cessation of treatment. The tongue was scraped vigorously with a sterile slide several times from as far back as possible, and the material ground by means of another slide to make an even layer. After heat fixation the film was stained with Gram or with other stains when necessary. In a number of cases cultures were made on Sabouraud's medium for identification of fungi and on broth and agar for identification of bacteria.

Dosage and Method of Administration.—Both antibiotics were given orally in capsules of 250 mg. Usually two capsules, sometimes more, were administered every six hours. Seventy patients (30 males and 40 females) received chloramphenicol, and 56 (32 males and 24 females) received aureomycin. The total amount of chloramphenicol given to any one patient varied from a few grammes to 96 g.; the average dose was 32 g. Aureomycin was usually administered for a shorter period, the highest total amount being 68 g., with an average dose of 28 g.

*This work was carried out during the tenure of a Whaitt Research Scholarship.

Survey of Side-effects

The side-effects of both antibiotics were to a certain extent similar. There were, however, sufficient differences to justify their separate consideration. Generally speaking, the side-effects were more often seen in patients treated for a longer time and with high doses. The results are given in the Table.

Side-effects of Chloramphenicol and Aureomycin Treatment in 126 Patients

Symptoms and Signs	Chloramphenicol		Aureomycin		Total	
	No.	%	No.	%	No.	%
Dryness of mouth	28	40	22	39	50	39
Sore or tender tongue	13	18	12	21	25	20
Denuded tongue	37	52	31	55	68	54
Smooth atrophic tongue	8	11	7	12	15	11
Brown-coated tongue	7	10	6	10	13	10
Blisters of tongue	2	3	—	—	2	1
Changes in taste	6	8	3	5	9	7
Burning sensation in mouth	7	10	6	10	13	10
Red oral mucous membrane	12	17	9	16	21	16
Sore throat	6	8	4	7	10	7
Angular stomatitis	8	11	7	12	15	11
Nausea	12	17	12	21	24	19
Vomiting	3	4	2	3	5	4
Heartburn	2	3	3	5	5	4
Flatulence	24	34	21	37	45	35
Rectal irritation	9	13	9	16	18	14
Vaginal irritation*	7	17	6	25	13	20
Scrotal and perineal irritation*	1	3	2	6	3	5
Skin eruptions	1	1	1	1	2	1
Diarrhoea	3	4	4	7	7	5
Loose stools	4	5	6	10	10	7
Headaches	4	5	3	5	7	5

* Percentages calculated for appropriate sex groups.

General reactions such as drowsiness and malaise were rare. One patient complained of a burning sensation, especially in the face, after chloramphenicol. One patient noted an increased frequency of micturition and dysuria. One patient who had initially very brisk tendon reflexes showed a marked diminution of reflexes after a few days' treatment with aureomycin. Another patient complained of some visual disturbances of a few hours' duration after chloramphenicol. One patient treated with chloramphenicol developed granulocytopenia, the total white count being 2,000 per c.mm.

Gastro-intestinal Symptoms

The Table shows that gastro-intestinal symptoms occur more often during treatment with aureomycin than with chloramphenicol.

Flatulence.—The common complaint was flatulence, which occurred in 35% of cases. "The wind" troubled them day and night and caused them embarrassment, especially in general wards. In one case of extreme flatulence the patient could hardly breathe and required the passage of a rectal tube to relieve him.

Nausea.—This was less frequent than flatulence and occurred in 19% of cases. It was not very marked in most cases, but in a few instances was severe enough to cause cessation of treatment. Actual vomiting occurred in two of these cases. Nausea and vomiting could sometimes be avoided by the use of antacids and milk, or by reducing the doses or dividing them and administering every three hours. Some patients complained of heartburn, and of a "hot feeling" in the stomach.

Diarrhoea.—In some cases a transitory diarrhoea of twenty-four hours' duration occurred shortly after the starting of treatment; in a few it persisted for two or three days after treatment was stopped. More often the patients complained only of loose stools without increase in number. In a large proportion of patients the stool became odourless after a few days, and in some it continued to be odourless for a time after the cessation of treatment. Occasionally, however, the stools were more odorous than before treatment.

Rectal and Genital Changes

A number of patients complained of anal, perianal, vaginal, and vulvar irritation. It was more common with aureomycin treatment, and was especially marked in patients who had simultaneous oral lesions.

Rectal Changes.—In the more severe cases rectal changes consisted in redness, exudation, fissuring, and, in one case, slight bleeding. There is often a sharp line of demarcation at the affected perineal skin, which tends to scale. In some instances the perineum was also red and tender. The patients usually complained of a burning sensation, itching, and sometimes actual pain. In one patient treated with chloramphenicol the changes persisted for many weeks, making defaecation a painful procedure. Examination of the exudate revealed in this case, as in two others, the presence of *Candida albicans* and large numbers of desquamated epithelial cells. *C. albicans* was found in large numbers in the faeces of the patients.

Genital Changes.—In women genital changes comprised vulvitis, with some fissuring and vaginitis accompanied by a slight discharge. The complaints were usually a "hot feeling" and "itching" in the vagina and external genitalia. In men genital symptoms were much less frequent. Three complained of some scrotal and perineal itching. In one of them, in whom oral changes were very marked, balanitis and a severe erythema of the scrotum and of the adjoining parts of the thigh and perineum developed after a few days of chloramphenicol treatment.

Oral Manifestations

Oral manifestations were the most frequent structural changes encountered. Young and middle-aged persons seemed to develop them more readily than older people. They were more frequent after treatment with aureomycin and much more common in women than in men, the ratio being 2 to 1.

Dryness of Mouth.—This was experienced by 39% of the patients and was usually trivial. In some patients, however, it was more troublesome: they felt as if the tongue was sticking to the palate and as if there was no saliva in the mouth. One patient complained that he could hardly move his tongue. The dryness is similar to that produced by atropine. In order to find out whether there was a real diminution of salivation, experiments were made in a few cases before, during, and after treatment. The patients were asked to spit as much as they could into a test-tube for five minutes. It was found that there was a true diminution of salivation, the amount produced being only one-third or one-half of that before treatment.

Throat Manifestations.—Complaints related to the throat were usually closely connected with the oral dryness. The more marked the dryness the more frequent were the throat manifestations. It was usually described "as if something was sticking in the throat." In some cases the trouble amounted to actual sore throat with marked difficulty in swallowing and some hoarseness of the voice. In one patient in whom the oral changes were very pronounced the sore throat made discontinuation of the treatment necessary, and it persisted for nearly three weeks afterwards.

Tongue Changes.—Some lingual changes developed in the great majority of cases if treatment with the usual dosage lasted for any length of time, the commonest

being the loss of the normal whitish coating. The pathological changes in the tongue were by no means uniform in character. They could be divided into two main groups: (1) atrophic glossitis, the more common type; and (2) hypertrophic glossitis with brown discoloration. This sharp division could not be observed in every case, as one type sometimes changed gradually into the other.

1. *Atrophic Glossitis.*—Usually after two to three days' treatment there was a gradual disappearance of the normal whitish coating and a denudation of the dorsum of the tongue. The tongue gradually became red and the filiform papillae shorter. With continuation of treatment a fiery red, raw, beefy tongue with partial atrophy of the papillae was often seen. In some cases showing marked atrophy of the papillae the tongue developed a completely smooth surface. In rare instances the picture outlined above developed acutely. It was noted that lingual manifestations appeared more readily when the patient had been treated previously with penicillin and streptomycin. The patient's subjective symptoms usually corresponded to the degree of objective change. They consisted in a nipping sensation while smoking or while eating toast or seasoned food, tenderness, a burning sensation, or actual pain. The soreness often started at the edges of the tongue. After cessation of treatment the subjective complaints soon disappeared, but the surface of the dorsum remained red and denuded sometimes for one, two, or more weeks, after which the filiform papillae returned gradually to normal. There was often a subsequent overgrowth of the filiform papillae, resulting in an abnormally coated tongue. In some cases the fungiform papillae, especially in the front and on the edges of the tongue, enlarged during the first few days' treatment. With the relative shortening of the filiform papillae the fungiform papillae stood out well above the surface.

2. *Hypertrophic Glossitis.*—In about 10% of patients some shortening of the papillae initially took place during the first few days' treatment, but soon a brownish coloration (melanoglossia) appeared on the back of the tongue, spreading gradually over its surface. The filiform papillae often became longer and a deep brown coating covered the dorsum. In four cases a true black hairy tongue developed. Not all cases of hypertrophic glossitis showed brown coloration. In some a marked coating of dirty-white or yellow colour persisted during the course of treatment, and for a longer time afterwards.

Taste.—The lesions on the tongue often affected the sense of taste. Two patients taking aureomycin complained of a "metallic taste." Some patients taking chloramphenicol complained of a "nasty taste," a "dreadful taste," a "horrible taste," or a "bitter taste." With either drug complete loss of taste occasionally resulted—"everything tasted just the same." In consequence appetite was often lost or became capricious.

Oral Mucous Membrane Changes.—Redness of the mucous membrane of the throat often accompanied the changes in the tongue. In two instances vesiculo-papular eruptions appeared on the lips and on the uvula. In two other cases a few blisters appeared on the red atrophic dorsum of the tongue. These lesions were seen in those cases in which atrophic glossitis was of particular severity. The subjective complaints were tenderness or a burning sensation in the mouth—a feeling "as if the mouth had been burned with hot food."

Angular Stomatitis.—In 11% of cases angular stomatitis was found, always in association with severe lingual and buccal lesions. It was more frequent in women. These changes persisted for some time after cessation of treatment. In two cases microscopical examination of the desquamated epithelium revealed the presence of *C. albicans.*

Therapeutic and Preventive Effects of Vitamin-B Group on Oral Lesions.—The changes in the oral cavity and on the lips were very similar to those seen in vitamin-B deficiency, especially riboflavin deficiency. Therefore in a number of cases with very marked atrophic glossitis, treatment with the vitamin-B group was instituted in the form of the complete complex, or riboflavin, sometimes with the addition of nicotinamide and thiamin. In comparison with untreated cases recovery seemed to proceed more quickly, though not in a dramatic way. In some patients vitamin-B complex was given together with antibiotics. Although the lesions could not be prevented their intensity was definitely less than in the untreated cases. Vitamin-B complex seemed to be more efficacious than riboflavin alone.

Examination of the Tongue Scrapings

Microscopical examination of the tongue scrapings in these cases gave some interesting information. It is an easy method which permits one to follow the action of antibiotics on the microflora and on the mucous membrane of the tongue. A detailed analysis, from the bacteriological and pathological points of view, of the scrapings during antibiotic treatment will be published elsewhere. In the present paper only a short account is given.

Illustrative pictures of the typical changes occurring in the tongue during chloramphenicol and aureomycin treatment are supplied in the Special Plate (Figs. 1–4). They show the dramatic disappearance of the bacterial flora and the subsequent establishment of a fungous flora (usually *C. albicans*). In a few cases scrapings of the tongue revealed the presence of other yeast-like fungi—for instance, torula (cryptococcus)—but the type of the others has not yet been identified. It is noteworthy that the upper respiratory tract can also be completely sterilized by chloramphenicol (Gray, 1950).

In most cases the bacterial flora disappears in a few days after the start of treatment. At the same time fungi appear in increasing numbers, very often in clumps composed of mycelium and ovoid yeast forms. It is of interest to note that in some cases *C. albicans* was also found in large amounts in the sputum, in the stool, and in the urinary sediment. The normal bacterial flora usually returns in one to two weeks after cessation of treatment, but fungi may persist for some days longer (Plate, Figs. 1–4).

A constant feature in the scrapings at the height of the treatment is the large number of desquamated epithelial cells and of leucocytes, usually polymorphs. They are particularly abundant in cases with a sore, red, atrophic tongue.

Discussion

Generally speaking, chloramphenicol and aureomycin are well tolerated; nevertheless, the side-effects, though not of a serious nature, may make the use of these antibiotics somewhat difficult and unpleasant. In only a few cases are they severe enough to justify discontinuation of treatment.

The side-effects described here are not exhaustive. According to Long *et al.* (1949) and Long (1950) patients receiving aureomycin in heavy dosage may show euphoria. Harris (1950) cites certain neurological symptoms such as drowsiness, mild mental confusion, and irritability, though he points out that they may not be strictly attributable to the antibiotics. Other symptoms described by him include headache, with mild signs of meningismus, Herxheimer reactions, urinary-tract symptoms, and dermal manifestations in the form of slight generalized desquamation, fleeting urticaria,

and sunburn-like erythema on parts exposed to sunlight, slight vaginal and rectal bleeding, as well as subungual haemorrhage. Vitamin-K deficiency is suspected in such cases. Angioneurotic oedema of the face and a generalized non-pruritic erythematous skin eruption were reported by Parets (1950) after aureomycin treatment. Duverne *et al.* (1950) recorded 21 instances of cutaneous or mucosal side-effects in 50 patients treated with chloramphenicol. Hewitt and Williams (1950) described vasomotor changes in the lower extremities after chloramphenicol treatment in which the skin was mottled, cold, and moist. Vasomotor collapse has been described after chloramphenicol treatment in cases of typhoid fever (*British Medical Journal,* 1950 ; Stephens, 1950 ; Chatterjee and Roy, 1950). Spink *et al.* (1948) reported an abrupt rise in temperature after the first doses of aureomycin, connected sometimes with a picture resembling shock. This, however, could be avoided by smaller initial doses.

Volini *et al.* (1950) have described three cases of severe reversible granulocytopenia with some arrest of erythroid and granulocytic maturation in the marrow during chloramphenicol treatment. Harris also mentions a case in which the leucocyte count fell to 1,000 with only 1% of polymorphonuclear cells after six days' aureomycin treatment. Although this may occur in exceptional cases, clinical investigations show that leucopenia is not a contraindication to chloramphenicol (Smadel, 1950). A fatal case of aplastic anaemia following chloramphenicol therapy has been reported by Rich *et al.* (1950). Recently Waisbren and Glick (1950) found that in certain instances aureomycin increases the coagulability of the blood.

Gray (1950) reports that children who received large doses of chloramphenicol developed a peculiar internal ophthalmoplegia ; it was characterized by rapid fatigue of accommodation on reading. He found also that, given in large doses, it may produce a " muscle fatigue syndrome," which he presumed to be due to some " blocking " of lactic acid combustion of an enzymatic nature.

Absence of bacteria may provide favourable conditions for the growth of various fungi such as *C. albicans,* which are sometimes pathogenic. Such an eventuality has already been described during penicillin treatment (Geiger *et al.*, 1945). The spontaneous occurrence of new bacterial infections during antibiotic therapy was reported by Weinstein (1947) and by Appelbaum and Leff (1948).

Fatal cases of disseminated mycosis following antibiotic treatment have been described by Zimmerman (1950). According to Farber (cited by Zimmerman) the site of entry of this mycotic invasion is usually the small intestine.

It is impossible at present to explain all the varied side-effects which accompany treatment with chloramphenicol and aureomycin. As the result of treatment there may be changes in the biochemistry of the body, especially in carbohydrate metabolism. An inhibitive action on coenzymes essential to carbohydrate metabolism has been suspected (Gray). However, Smith and Worrel (1949), who studied the interrelationship between chloramphenicol and various enzymatic systems, could not detect any inhibitory action on these systems.

It is possible that some side-effects in the intestinal tract such as diarrhoea and flatulence may be the direct result of the alteration in character and reduction in number of the normal bacteria. According to Spink and Yow (1949) gastro-intestinal complaints can be avoided by intravenous administration of aureomycin. The role of the intestinal flora in the processes of digestion and in the production of certain vitamins is not yet fully understood, but the extensive destruction of the normal bacterial flora may have considerable repercussions. An answer to this question may be obtained from the elaborate experiments which have been going on for some years on the breeding of germ-free animals (Reyniers *et al.*, 1946, 1949a, 1949b).

It is more difficult to explain the lesions in the mucous membranes of the body orifices, especially the oral cavity. The frequent association of lesions in the three body orifices suggests some close relationship between them. These lesions may result from a chemical action on the cell metabolism, but the presence of some protective action of the normal bacterial flora cannot be excluded. Absence of bacterial flora permits the establishment of fungous flora which may have some irritant effect on the mucous membranes.

Sex has a definite influence on the incidence of the mucous membrane manifestations. In Harris's cases the ratio of women was 3 to 1, and a ratio of 2 to 1 was found in the present series. Harris has suggested that an oestrogen deficiency may play some part in the production of vaginitis: he has reported the subsidence of severe aureomycin-produced vaginitis in two women after a single parenteral dose of an oestrogen.

Another point of interest is the similarity of the oral changes produced by antibiotics to those in vitamin-B deficiency, especially in ariboflavinosis. The protective and therapeutic effects of the vitamin-B group on the oral lesions in certain cases suggest some connexion with vitamin-B metabolism, the nature of which has yet to be examined.

Summary and Conclusions

A survey of the side-effects encountered in 126 cases treated with chloramphenicol and aureomycin has been made. They have been divided into general, gastro-intestinal, genito-rectal, and oral manifestations. They are more marked in women than in men and develop more rapidly in cases previously treated with penicillin and streptomycin.

The most striking changes are found in the oral cavity. Scrapings of the tongue generally show a rapid disappearance of the normal bacterial flora and the establishment of a fungous flora, usually composed of *C. albicans.* The danger of secondary mycotic invasion is discussed.

The changes in the tongue are usually those of an atrophic glossitis ; less often, a hypertrophic glossitis occurs with a brown discoloration of the tongue.

The similarity of the oral changes produced by antibiotics to those found in vitamin-B deficiency is stressed, and reference is made to the prophylactic and therapeutic effects of treatment with vitamin-B complex.

I would like to express my thanks to Professor D. M. Dunlop for his interest in this work and his helpful criticism of the paper. My thanks are due also to Dr. J. Duguid, of the Department of Bacteriology of the University of Edinburgh, for his valuable assistance. The photomicrographs were prepared in the Photographic Unit, Pathology Department, University of Edinburgh.

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CARCINOMA OF THE CERVIX UTERI IN AN INFANT

BY

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[WITH SPECIAL PLATE]

With few exceptions malignant tumours of the uterus in children are sarcomatous, but cases of carcinoma have been recorded from reliable sources. Carcinoma of the cervix uteri is one of the very rare forms of malignant disease which occur in childhood. Pollack and Taylor (1947), in their review of the literature on this subject, listed 30 cases of histologically proved carcinoma of the cervix which occurred during the first two decades, and added another case of their own, a patient aged 18 years. Bowing and McCullough (1941) reviewed the case histories of 3,000 patients suffering from malignant disease of the cervix uteri referred to the Mayo Clinic for examination and treatment, and found only one patient of under 20. This patient, whose history they reported in detail and who is included in Pollack and Taylor's list, was a girl aged 13. There is no doubt, therefore, that the disease is very uncommon in childhood.

The youngest authenticated case of carcinoma of the cervix on record appears to be a baby of 6 months, operated upon by Professor Franz in the Charité Frankenklinik of Berlin, and reported by Palmer Findley (1924). Findley stated that he examined the gross and histological specimens, and was satisfied that the lesion was an adenocarcinoma of the cervix. The patient died 14 days after total hysterectomy had been performed.

Bumm (1909) also reported a case of carcinoma of the cervix in an infant of 7 months, but the macroscopic description of the lesion suggests sarcoma botryoides, and no histological confirmation of the diagnosis of carcinoma was offered. Pollack and Taylor included the case in their list, but Bowing and McCullough, who also reviewed the literature since 1862, were not satisfied that the criteria for a precise diagnosis were met. Adams (1915) described an advanced case of cancer of the cervix and body of the uterus in a child of 2½ years, but the Pathological Committee of the Royal Society of Medicine, reporting on the specimen, decided that it was a teratoma. Bowing and McCullough regarded a patient of 7 years described by Glöckner (1908) as the youngest case of carcinoma of the cervix on record but appear to have overlooked Palmer Findley's report.

We have recently observed a case of undoubted cervical carcinoma in a child of 15 months. It is presented as another reminder of the importance of malignant disease as a cause of death in childhood, increasingly so since infectious diseases have become well controlled by antibiotics.

Case Report

A baby girl born on March 17, 1948, was brought to hospital on June 30, 1949, because she had passed blood-stained urine during the previous four days, and her mother had also noticed a clot in the vulval orifice on the day before admission. On closer questioning the mother said that the child had recently been straining when passing urine and faeces. She had been drinking well but not excessively; the quantity of urine seemed to be normal and there was no increased frequency of micturition. The stools had been loose and frequent two weeks previously, during a cold, but this symptom had not persisted more than a few days, and the child was thought to be well in other respects. She had not complained of pain.

She was the second child of healthy parents and was born normally at full term. Her birth weight was 7½ lb. (3.4 kg.). She was breast-fed for ten months and there were no feeding difficulties, but in spite of this she had never gained well. On admission her weight was only 17 lb. (7.7 kg.), but her parents had noticed no evidence of weight loss, and, although on closer questioning they agreed that she had been fretful and "not quite herself" for about six weeks, they had always regarded the child as healthy except for a cold two weeks before admission.

Examination showed the patient to be irritable, small for her age, and underweight for her size, though there was no real evidence of wasting. She was pale, but her haemoglobin was 76% and the white cell count was within normal limits. No abnormal physical signs were observed in the heart and lungs. The abdomen was slightly enlarged, and a firm swelling could be felt rising out of the pelvis to the level of the umbilicus. On rectal examination this mass appeared to be cystic and was thought to be distended bladder. The liver was palpable one fingerbreadth below the costal margin and seemed to be somewhat harder than normal. There was no oedema, and the veins of the abdominal wall were not prominent.

On examination under anaesthesia on June 30 catheterization was carried out with some difficulty, as the urethral meatus appeared to be drawn upwards into the vagina: 240 ml. of urine was withdrawn. The abdominal enlargement was reduced but the main mass persisted. The cervix, viewed through a "nasal" speculum, appeared normal apart from a tiny erosion around the external os. No bleeding or discharge was present. Rectal examination revealed a smooth solid pelvic tumour which was continuous with that felt in the abdomen. The whole swelling was mobile to some extent and was roughly pear-shaped, the narrow end being in the pelvis. The uterus was not identified bimanually.

Examination of the urine revealed: specific gravity, 1012; albumin, faint trace; occasional R.B.C.; sterile on culture. The blood urea was 102 mg. per 100 ml. A provisional diagnosis of pelvic kidney was made.

Catheterization was again necessary on July 1, as the bladder was distended, and clear urine was again obtained. A little sanguineous vaginal discharge was observed on this occasion. Cystoscopy on July 2 revealed diffuse inflammatory

T. TOMASZEWSKI: SIDE-EFFECTS OF CHLORAMPHENICOL AND AUREOMYCIN

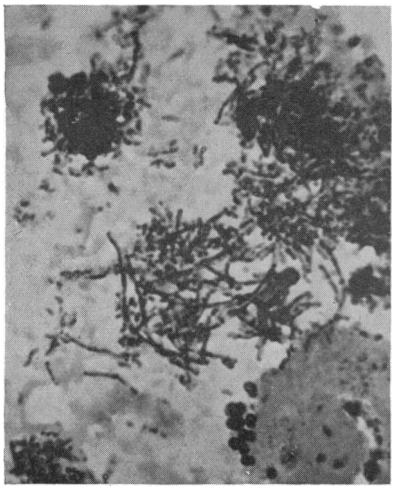

FIG. 1.—Scraping of the tongue before treatment. Mixed bacterial flora. (× 1,000.) The patient, who was treated with chloramphenicol, 4 g. daily to a total of 96 g., developed hypertrophic glossitis with brown coloration of the tongue.

FIG. 2.—Third day of chloramphenicol trea ment. Absence of bacteria; scattered groups of fungi.

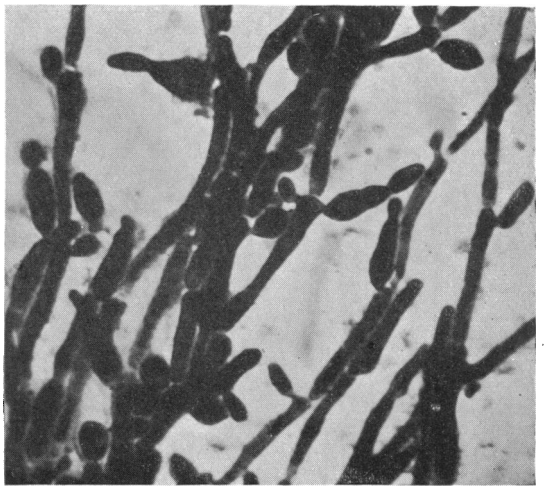

FIG. 3.—Twenty-fourth day of chloramphenicol treatment. Absence of bacteria; rich growth of fungi. Treatment stopped on that day.

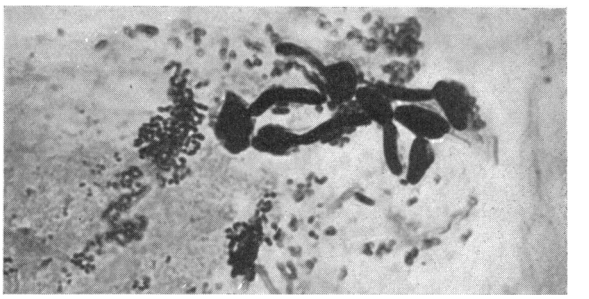

FIG. 4.—Seventeen days after stopping chloramphenicol. Bacteria reappeared after a week, and are here seen in large numbers; scattered groups of fungi are still present.

H. BREBNER: DISSECTING ANEURYSM OF AORTA

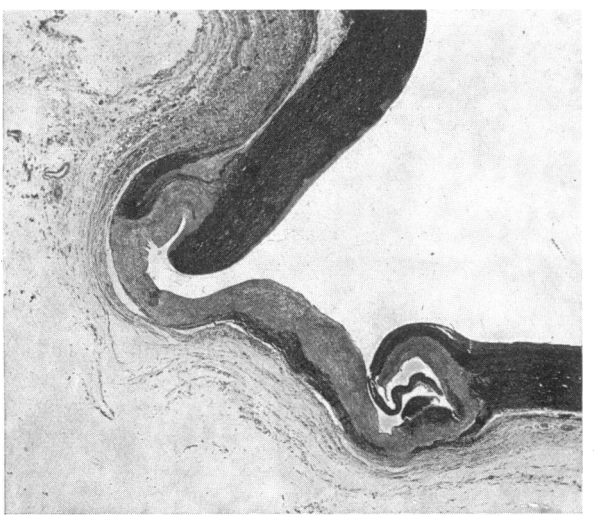

FIG. 1.—Section through aorta at site of dissection, showing disruption of media.

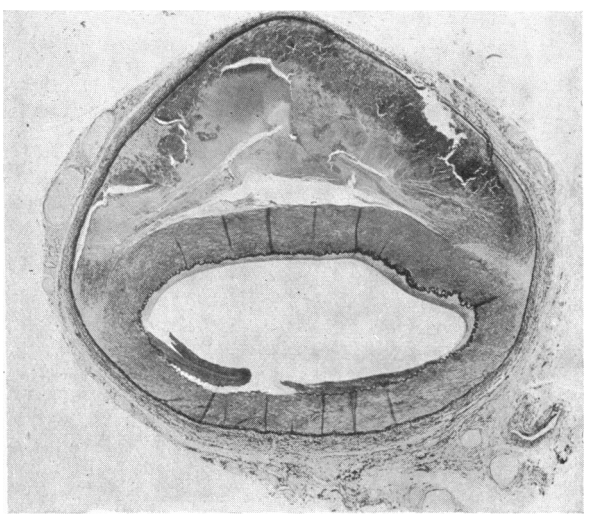

FIG 2.—Renal artery, showing dissection.

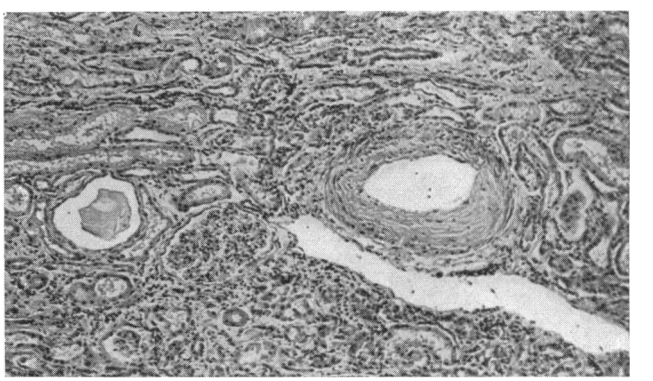

FIG. 3.—Section of right kidney. Arteriolar sclerosis is seen.

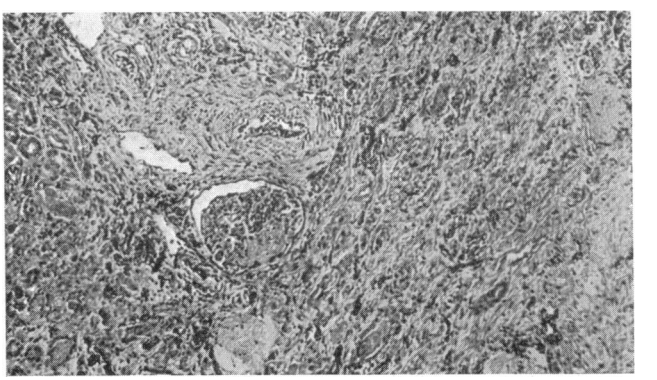

FIG. 4.—Section of left kidney. Arteriolar sclerosis is seen. The edge of an infarcted portion is visible.