independently of the treatment by gold salts. Sporadic cases of polyneuritis with facial diplegia of the so-called "acute infective type," though uncommon, do occur.

Douthwaite,³³ under the title of "gastrogenous polyneuritis," has grouped together a series of cases of peripheral neuritis unrelated to any obvious causal agent, but in each of which there is some associated disease of the stomach. Case 4 of his series, a woman with polyneuritis and achlorhydria, is somewhat similar to the one described in this paper, except that there was a slight anaemia present in his case. Douthwaite's view is that the health of the peripheral nerves may be dependent on an adequate supply of some essential factor, which may fail in cases of achlorhydria following a chronic gastritis.

Summary

1. The occurrence of nervous complications is the rarest of all known accidents following treatment by gold salts.
2. A survey of the reported cases, mainly from the French literature, has been made.
3. A case is reported of a woman who suffered from a four-limbed peripheral neuritis, accompanied by bilateral facial weakness and slight bulbar involvement, occurring at the end of a course of treatment with gold salts.
4. The differential diagnosis, prognosis, and treatment are discussed.

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According to the Budapest correspondent of the *Journal of the American Medical Association* there are 3,697 doctors in that city or one doctor to 370 persons; 291 are women, sixty-one are above 70 years of age, and most between 30 and 35; 1,561 are Christians and 1,137 Jews; 39 per cent. are unmarried. Four-fifths are specialists and only one-fifth general practitioners; 33 per cent. have no telephone, and 17 per cent. do not subscribe to any medical journal.

INTESTINAL TUBERCULOSIS LIMITED TO THE APPENDIX

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The frequent involvement of the appendix in intestinal tuberculosis has long been recognized, being estimated as occurring in about 70 per cent. of the cases (Engelsmann, 1918; Winkler, 1910; Schwatt and Steinbach, 1923). Fenwick and Dodwell (1892), who examined the reports of 2,000 necropsies at the Brompton Hospital, came to the conclusion that it is quite an exception to find the appendix free from disease when there is tuberculous ulceration of the ileo-caecal region. It is also well known that tuberculosis of the appendix rarely shows clinical signs; this has been attributed to simultaneous involvement of the ileo-caecal region and of the appendix, wherein the symptoms of the former conceal those of the latter. On the other hand, owing no doubt to the scarcity of material, it is still uncertain whether the appendix is ever the first or only part of the intestine to be attacked by tuberculosis. (Naturally I am not referring to cases in which the appendix is the site of the primary tuberculous focus—primary complex, that is, the place of entry for the first infection of the whole organism (Woerner 1911, Miloslavich 1912)—but to cases of so-called secondary intestinal tuberculosis resulting from tuberculosis already established in another organ, generally the lungs.)

When tuberculosis of the appendix is discovered post mortem tuberculous lesions are also observed elsewhere in the intestines. Discovery of tuberculosis in excised appendices in only exceptional cases permits conclusions as to the site of the primary intestinal lesions. In 515 cases of appendicitis Noehren established microscopically the existence of tuberculous lesions in 3 per cent.; Mueller in 1.6 per cent.; Miloslavich (1912) in about 1 per cent.; Deaver (1905) in 0.27 per cent.; Drissen and Zollinger (1935) in 0.3 per cent. See also Nové-Josserand, Roulet, and Bertrand (1933).

Present Investigation

The present contribution to the question of the primary or exclusive localization of intestinal tuberculosis in the appendix is based on material from eighty-four necropsies on tuberculous subjects; in fifty of these careful histological examination was carried out.* The cases were divided into six groups, in which the following figures were obtained:

1. Absence of tuberculosis of the intestine and appendix was established in thirty cases, a number corresponding to the frequency of secondary intestinal tuberculosis maintained by Orth (1887), Zahn (1902), M. J. Stewart (1928), E. H. Rubin (1930), but less than that obtained by Engelsmann (1918) and Kaufmann.
2. Intestinal tuberculosis without involvement of the appendix was observed in twenty-nine cases.
3. Six cases showed mild intestinal tuberculosis with involvement of the appendix.
4. Advanced tuberculosis of both intestine and appendix occurred in eleven cases.
5. Advanced tuberculosis of the appendix with slight or incipient changes in the intestine was observed in five cases.
6. The appendix was the only diseased section of the intestine in three cases.

* Owing to the recent death of Dr. E. Weichherz, a statistical inquiry into the question at issue, which was being made by him at the Bulovka Hospital, Prague, has unfortunately not been completed.

From these figures we may infer that: (a) in about 50 per cent. of cases of secondary intestinal tuberculosis the appendix is involved; (b) usually the changes in the appendix are equally or less advanced than those in the intestine; (c) in a number of cases the appendix is certainly not the part of the intestine first infected; (d) the appendix can be the part of the intestine attacked first, although definite proof can only be found in those few cases in which intestinal tuberculosis is limited to the appendix: in this respect three of the above cases were remarkable.

Case I

The patient was a man aged 30. There were no abdominal symptoms except epigastric pain after meals, which had persisted for three years. Onset of pulmonary disease occurred five years ago. The patient wears an abdominal belt owing to indigestion.

Necropsy.—In both upper lobes there were large cavities and outspread due to aspiration; recently liquefying foci were present in both lower lobes. The right ventricle of the heart was dilated. There was general blood stasis. Chronic fibrosis of the peritoneum with adhesions of the abdominal viscera was observed. There were no tuberculous lesions in the intestine, except in the appendix, which was greatly enlarged and filled with thin yellow pus containing numerous leucocytes and macrophages, cocci, and a few acid-fast rods like tubercle bacilli. The inner surface of the appendix was distinctly divided into two parts, the proximal being longer and more spacious than the distal. The mucous membrane was rough and defective. Histological examination revealed extensive areas in which mucous membrane was absent. The rest of the mucosa and submucosa was covered with leucocytes, lymphocytes, as well as plasma cells. Here and there typical epithelioid tubercles with giant cells were observed. In the superficial layers of the wall there were a few but definite tubercle bacilli.

In this case there can be no doubt that the disease was tuberculous, and that the appendix was the sole site of the intestinal infection. The findings in the appendix were in many respects uncommon, for there were no typical tuberculous ulcers, marked contraction and thickening of the organ, or perforation.

Fenwick and Dodwell (1892) mention two similar cases, in which the superficial character of the disease appeared to denote a catarrhal rather than a specific origin, but microscopical examination removed all doubt as to the tuberculous nature of the appendix lesion. A similar case was also described by Miloslavich (1912), but this may have been a case of primary complex in the appendix, because the ileo-caecal lymphatic glands were caseous, and there was acute miliary generalization. In the peculiar case of Popper's (1929), on the other hand, there was no evidence that the tuberculous process was confined to the appendix. The same applies to Coley's case (1925).

Case II

The patient was a man aged 31, with extensive pulmonary tuberculosis; an isolated tuberculous ulcer of the appendix was the only intestinal lesion. There were no abdominal symptoms. Similar instances have been described by E. H. Rubin (1930) and Schwatt and Steinbach (1923). In the necropsy reports of Fenwick and Dodwell (1892) there are seventeen instances among 2,000 with ulceration limited to the appendix.

Case III

In this case of intestinal tuberculosis limited to the appendix the patient was a man aged 50 who had had a duodenal ulcer seven years previously (four years before onset of pulmonary tuberculosis). There were no abdominal symptoms except attacks of vomiting eight days before death. Necropsy showed chronic bilateral pulmonary tuberculosis with cavitation, and a tuberculous lesion of the appendix. The appendix was slightly enlarged and filled with pus, and there was one

large and several small ulcerous areas in the upper part. A film of the pus showed the typical appendix flora (Gram-positive cocci and rods) and occasional acid-fast rods. Histological examination revealed small caseous areas with tubercle bacilli and some epithelioid cell tubercles without caseation in the walls of the ulcers.

Comment

A survey of these cases of secondary intestinal tuberculosis limited to the appendix shows that abdominal symptoms, if present, were insignificant—diffuse or epigastric pain after meals, short attacks of vomiting, etc. There were no objective signs of an abdominal lesion. By anatomical examination a somewhat unusual condition of the appendix is detected which may present the appearance of a diffuse chronic catarrhal rather than of a tuberculous lesion; or ulceration may predominate. Even in the histological picture chronic inflammation is the prevailing feature, but the occasional presence of epithelioid cell tubercles, caseation, and tubercle bacilli, both in the lesions and in the contents of the appendix, demonstrates the specific origin of the disease. Such cases of intestinal tuberculosis limited to the appendix show that the latter may be the first part of the intestine to be attacked.

The question arises, "Do those cases where other parts of the intestine are involved, but where the changes in the appendix are more advanced than those in the rest of the intestine, permit the assumption that the appendix has been the first part of the intestine to be attacked?" The ileum or the caecum presents the usual picture of incipient intestinal tuberculosis marked by small ulcers or subepithelial conglomerate tubercles, whereas the number of ulcers in the appendix is remarkably great (ten to twenty) or the whole organ may be already transformed into a caseous, ulcerous mass perforated in one place. In such cases it is surely justifiable to suspect that the process has originated in the appendix, although conclusive evidence cannot be adduced. On the other hand, the peculiar position of the appendix may cause the tuberculous process therein to progress more rapidly than the disease affecting the other parts of the intestines.

Summary

1. Three cases of intestinal tuberculosis limited to the appendix have been described, and evidence of the peculiar character of this form of intestinal tuberculosis has been given.
2. In intestinal tuberculosis the appendix may be the section of the intestine first to be attacked.
3. No reasons exist for believing that this occurs very frequently.

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