

Title	Roentgen Features of Typhoid Fever
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Citation	日本医学放射線学会雑誌. 1964, 23(12), p. 1480-1482
Version Type	VoR
URL	<a href="https://hdl.handle.net/11094/17051">https://hdl.handle.net/11094/17051</a>
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## ROENTGEN FEATURES OF TYPHOID FEVER

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## 腸チフスのレントゲン像

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(昭和39年1月20日受付)

最近往往にして、腸チフスの確定診断がつかないままに、中途半端な化学療法を行ない、一時軽快後再発を起して死亡する例がある。

この際、腸のレ線像が診断に役立つ筈であるが一般にそのレ線像の知識に乏しいが故に、見てもわからない場合が少なくない。

症例：54才の婦人、高熱と下血を主訴とするほ

か特記すべきことはない。レ線検査では回腸終末部附近にパイエル板肥厚による数個の結節状陰影欠損、その附近に潰瘍を認む。

再入院時の腹部単純撮影では、腹部全体がガスで充満され、右横隔膜下に鎌状のガス像を示しているのが認められ、穿孔による汎発性腹膜炎と診断した。

Although typhoid fever is extensively described in the literature, the authors have found little information about radiological findings of the ileum. The interest of the condition lies in the initial diagnostic problem and in the radiological features which are rarely seen in x-ray departments of general hospitals and little attention has been given to it in the radiological literature. The medical journals of the world contain a few reports on the radiological features for most of the last twenty years but we have been able to find only one description of typhoid fever in detail in the "Radiologie clinique de l'intestine grêle de l'adulte et de l'enfant".

The purpose of this paper is to discuss briefly some radiological concepts of the typhoid fever and to call your attention to the fact that the radiographic appearances of the ileum can be interpreted more exactly in terms of pathological changes than has hitherto been thought possible. About 20 years ago typhoid fever was one of the most acute disease in the infectious diseases for adults at a time when the use of antibiotics was not yet as general and effective as it is now. In most cases of typhoid fever, the correct diagnosis has

been made by serologic and bacteriologic examinations, but we radiologists should take stock of how much we may contribute to the correct diagnosis. Early recognition of this entity is of paramount importance since death may result from perforation of the viscus in a matter of hours. The features of the disease process affecting the ileum need emphasis for a proper understanding of the radiological findings. The following case is thought worthy of record because of the unusual course in a patient considered clinically to be suffering from typhoid fever, although the serologic tests were reported as negative by the bacteriologist. It was therefore felt that the presentation of a case of typhoid who was extensively studied because of the unusual appearance of the ileum would prove of interest.

#### CASE REPORT

The patient, Y.T. a female, aged fifty four years, was admitted to hospital on February 25, 1961, because of high fever and blood in the stool. Twenty days before her admission to the hospital, the patient was treated for common cold. On February 24, 1961, she noted the other additional symptom of bleeding in the stool. Although a diagnosis of common cold was made, the reason for high fever and bleeding in the stool was not clearly understood. The possibility of these symptoms' being due to typhoid was considered. It was because of these episodes that the patient entered the hospital for therapy.

Laboratory examination revealed: erythrocytes, 3.26 million per cu. mm.; leucocytes, 2.900; hemoglobin, 75%. Stool culture produced no growth. Widal's test was negative, Although laboratory examination was negative for typhoid, she was considered clinically to be suffering from typhoid and chloramphenicol therapy was instituted but the temperature still remained high and became intractable to any form of treatment. At this time her physician discontinued chloramphenicol and prescribed steroid hormones in an effort to control the symptoms of high fever and intestinal bleeding. The patient seemed to respond to treatment and was discharged on March 28, 1961. She was thought to be in good health until 19 days before readmission to the municipal hospital.

Radiological study.-Roentgenograms taken after administration of barium by mouth were made on March 9, 1961 and the chief roentgen diagnostic features of typhoid (Fig. 1) include: (1) round defects in the terminal ileum due to hyperplasia of Peyer's patches; (2) oval or serpiginous ulcerations on margin of terminal ileum; (3) atonia or dystonia of the entire small intestine; (5) segmentation.

The patient was seen again on April 13, 1961, complaining of chills with high fever and constipation. Three days later she was taken to the municipal hospital where x-ray examination by means of an upright film of the abdomen showed considerable gaseous distension in several segments of the small bowel and sickle-shaped gas bubble beneath the right diaphragm. The findings were suggestive of an accumulation of gas, indicating fatal peritonitis (Fig. 2).

Blood was drawn at the time of admission for numerous examinations. The agglutination test for typhoid was reported to be positive. The hemogram revealed 3.4 million per cu. mm., 2,800 leucocytes and 72% hemoglobin. During her admission to this hospital her breathing was noted to be shallow and she had a temperature of 39°C. Oxygen therapy



Fig. 1

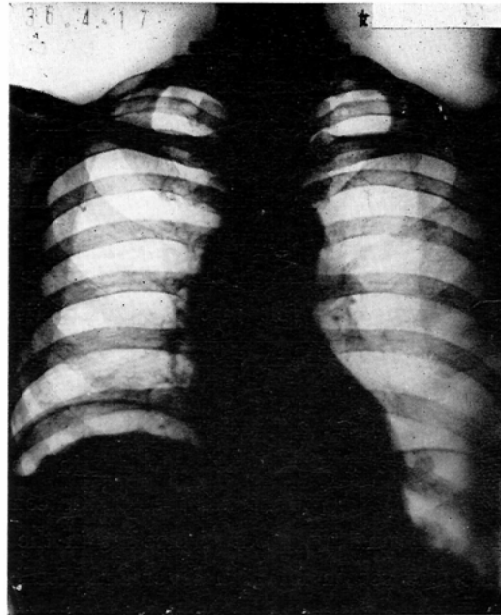


Fig. 2

was given and continued during her stay in the hospital. She died on the afternoon of her ninth hospital day.

#### DISCUSSION

Serologic tests during the course of an illness is strong evidence in support of the diagnosis of typhoid fever. However, it is important to remember that amongst the negative patients for serologic tests there are several cases in which radiography is of considerable value in explaining the patients' clinical state and in determining whether to continue or discontinue chloramphenicol therapy. Barium studies are contra-indicated in such circumstances as hemorrhage or perforation of the bowel, but before transferring a patient with suspected typhoid fever to the isolation service, confirmatory evidence, as described above in the roentgenographic features that are strong evidence in support of the correct diagnosis, is obviously desirable. Radiographically typhoid will cause ulceration in much the same way as any other lesion such as intestinal tuberculosis. The subject therefore needs little further discussion. The changes produced by typhoid fever consist of round defects in the terminal ileum due to hyperplasia of Peyer's patches and Stierlin's sign is negative. This is one of the ways of differentiating the condition from intestinal tuberculosis which produces very similar roentgenographic features.

#### SUMMARY

A case of typhoid fever is described and illustrated. The radiological approach is discussed and advised in order to show the radiographic features of typhoid in the terminal ileum. A more accurate assessment of the small bowel in patients of typhoid is required in the future.

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