The absence of urobilin in the urine in the early stages would seem to point to an obstructive element in the jaundice such as might be caused by the bile pigment masses in the small canaliculi that Hutchinson *et al.* described; however, the alkaline phosphatase was never above 16.3 units. Unfortunately the Coombs tests were done too late to exclude a haemolytic factor. Apart from the complicating *Ps. pyocyanea* infection there was no evidence of renal damage. The blood urea remained normal, and there were no casts or red cells in the urine. The serum diastase value of 320 mg. per 100 ml. would appear to suggest disturbance of pancreatic function.

The mental state of the patient is worthy of passing comment. There was never any sign of meningitis leptospiriosa. Three possible theories about causation are: first, that the condition was due to cerebral damage by the organism or its toxins; secondly, that it was due to the severe jaundice; and, thirdly, that the haemorrhagic state present at the onset in the skin was also present in the brain; this is, I think, the most likely.

Summary

A case of Weil's disease, with liver-function tests, is described.

An attempt is made to correlate these with previously described accounts of the pathology of this condition.

Other interesting features of the case are briefly dwelt on.

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PRIMARY LYMPHOSARCOMA OF APPENDIX OCCURRING IN CHILDHOOD

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Lymphosarcoma arising in the appendix is rare; only seven cases occurring in childhood have been published. In a majority of such cases the children have had symptoms suggestive of appendicular disease. In the following case the patient had no such symptoms, and the clinical picture which presented was therefore of special interest.

Case Report

A boy aged 6 years 9 months was admitted to hospital on October 1, 1948. The child had been well until four weeks before admission, when he was immunized against diphtheria. Since then he had been "off colour" but had attended school. Three days before admission he complained of pain in his chest and right thigh, and vomited once. His mother noticed a swelling on his left temple on the following day; but there had not been any loss of weight or other symptoms. There was nothing relevant in the family history or in the child's previous personal history.

On examination his temperature was 100° F. (37.8° C.), pulse 80, and respirations 20. The child's general condition was poor; he was very irritable and complained of pains in all his joints. A swelling on the left temple was noted and there were palpable glands in the left axillary and cervical regions. Abdominal examination revealed tenderness in both iliac fossae, but there were no palpable masses. Routine clinical examination did not show any further abnormal features.

For the first three days the temperature varied between 98.4 and 102° F. (36.9 and 38.9° C.). On the fourth day his temperature fell and remained normal until the eighth day, when it rose to 103° F. (39.4° C.). At this time the left knee-joint was slightly swollen. There was no cardiac enlargement, but a soft apical systolic murmur could be heard. The abdomen was rather large and doughy, with dullness in both flanks. The liver was enlarged one fingerbreadth below the costal margin and the tip of the spleen was felt. The kidneys were not palpable and no other abdominal masses were found. There were no abnormal signs in the central nervous system.

Radiographs of the chest, abdomen, and skull, a Mantoux test (1:10,000 dilution), blood culture, and Widal reactions

A = Gall Bladder; B = Liver; C = Kidney; D = Pancreas;
 E = Stomach; F = Ileal Mass; G = Appendix.

were all negative. The erythrocyte sedimentation rate was 50 mm. in one hour. The blood picture was: haemoglobin, 68%; red cells, 3,920,000; white cells 5,000 (polymorphs 54%, myelocytes 7%, metamyelocytes 14%, lymphocytes 20%, monocytes 3%, eosinophils 2%). An intravenous pyelogram, the blood Wassermann reaction, and a blood-urea estimation were all negative. No Bence-Jones proteose was present in the urine, and the stools did not contain either visible or occult blood.

The pyrexia was maintained despite penicillin and salicylate therapy. The liver increased in size to two fingerbreadths below the costal margin. The swelling over the left temple had increased in size and was now 1 in. (2.5 cm.) in diameter; it was tender and gave the impression of deep fluctuation. No further lymphatic gland enlargement developed. The child's appetite remained good, but despite this he was obviously becoming more wasted. His bowels were normal and he had no vomiting. An irregular soft mass, thought to be faeces, was felt in the right iliac fossa on the thirteenth day. The rectum was found to be loaded with soft brown faeces, but there was no palpable mass. Just below the ninth costal cartilage a small nodule was felt on the enlarged liver. There were no signs

of free fluid in the peritoneal cavity. The abdominal girth was 21½ in. (54 cm.). The blood pressure was 130/70 mm. Hg.

The abdominal mass became progressively larger and firmer, but signs of obstruction were not observed. His pallor increased, and despite a blood transfusion he died 32 days after admission. Before he died the child developed proptosis of the left eye and a left-sided facial weakness.

Post-mortem Findings

The appendix measured 12 cm. in length and 4 cm. in diameter. It was horn-shaped, with a smooth white serosal surface (see Fig.). On section it consisted throughout of a uniform white homogeneous tissue in which the lumen could not be distinguished. This condition ceased abruptly at the root of the appendix. There were widespread deposits of a similar tissue throughout the body, affecting practically every organ.

Histology.—The greatly enlarged appendix consisted of sheets of cells resembling small lymphocytes which obliterated the lumen and destroyed muscle, leaving only traces of widely

tissue, suggests that the disease arose there, and is in contrast with another large mass in the ileum, which seems to have been formed by the fusion of several submucous lesions similar to those seen elsewhere in the intestinal wall.

Lymphosarcoma occurs more commonly in males, and in the reported cases the ratio of males to females was 3 to 1. Munson and Mann (Guthrie, 1948) believe that the outlook is good after surgical removal of a solitary tumour. Knox (1945) suggests that radiotherapy may be expected to be helpful in prolonging life and may even cure if the disease is localized. Sugarbaker and Craven (1940) state: "The occasion of a primary site in the gastro-intestinal tract regardless of sporadic reports of cures seems to carry an unfortunate outlook. None of the patients whose stomach or small intestines were involved lived for five years, the average survival period being 6.6 months."

Table Showing Details of Reported Cases

Reported By	Age in Years	Sex	Presenting Symptoms	Duration	Operation	Follow-up	Operation Findings
Apitz (1933)	8	Male	Died from uraemia	Approx. 6 weeks	None	None	Appendix 5 cm. in circumference and 17 cm. in length
Capecchi (1927)	8	..	Mild abdominal pain in right lower quadrant	1 month	Appendicectomy	None	Distal third of appendix: tumour size of hen's egg
Carnelli (1931)	10	..	Pain in right lower quadrant	2 months	Appendicectomy, excision of left part of caecal wall	Asymptomatic 14 months later	Appendix with tumour at proximal end 2.5 cm. long by 0.5 cm. broad; the caecal wall was infiltrated
Friend (1926)	9	Female	Recurrent cramp-like abdominal pain in right lower quadrant	3-4 weeks	Appendicectomy (high unrotated caecum)	Death 1 month later	Hard, firm, thick appendix 15 cm. long
Knox (1945)	4	Male	Intermittent pain right lower quadrant with nausea, vomiting, and moderate diarrhoea	2 months	Appendicectomy	Asymptomatic 15 months later	Appendix 9.5 cm. long, 18 mm. thick
Rohdenburg (1919, 1921)	4	Not given	History suggestive of acute appendicitis with pre-operative diagnosis of intussusception	No time stated, but apparently acute	Appendicectomy with partial removal of caecum	No recurrence after 10 months	New growth involving proximal third of appendix and extending into caecal wall
Warren (1898)	6	Male	Intermittent pyrexia and pain in right lower quadrant	1 month	Resection of part of ileum, caecum, and appendix	None	Appendix size of thumb
Present case	6½	..	Pyrexia and vague ill-health. No symptoms referable to abdomen	1 month	None	None	Appendix 12 cm. long by 4 cm. broad

separated muscle fibres in the external layer. Occasional mitoses were to be seen. Silver staining showed very scanty reticulin fibres traversing the tissue, particularly in relation to small vessels: large tracts of cells were devoid of reticulin. The other structures containing obvious tumour showed similar histological changes. The spleen, pancreas, and thyroid, although normal to naked-eye examination, showed a slighter degree of infiltration.

Discussion

Knox (1945) gave details of a boy aged 4 years with lymphosarcoma arising in the appendix, and he reviewed 16 cases of undisputed primary lymphosarcoma of the appendix, of which five had occurred in childhood (Warren, 1898; Rohdenburg, 1919; Friend, 1926; Capecchi, 1927; Apitz, 1933). A further search of the literature revealed one other case in childhood (Carnelli, 1931). So far as can be ascertained no such case occurring in childhood has been reported in British literature.

In all reported cases, except that of Apitz, the presenting symptoms were suggestive of acute or subacute appendicitis. Laparotomy was performed and a tumour involving the appendix found and removed. The age, sex, presenting symptoms, duration, nature of operation and findings, and period of follow-up are shown in the accompanying Table.

In our case the uniform homogeneous appearance of the appendicular lesion, with complete replacement of the inner layers of the wall of the appendix by lymphosarcomatous

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The National Insurance Advisory Committee has been asked to consider and report on preliminary draft regulations concerning students from outside the United Kingdom who during a vacation become temporarily employed in Great Britain. The effect of the regulations is that, in cases approved by the Minister of National Insurance, contributions under the National Insurance scheme will not be required unless the students are continuously resident in Great Britain for 26 weeks. Industrial injuries contributions remain payable. Copies of the preliminary draft of these regulations (the National Insurance (Residence and Persons Abroad) Amendment Regulations, 1950) can be bought for 1d. from H.M. Stationery Office or any bookseller. The committee will consider written objections to them if sent before January 3, 1950, to the Secretary, National Insurance Advisory Committee, 6, Curzon Street, London, W.1.