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Case report

Chylous ascites, intestinal lymphangiectasia and the 'yellow-nail' syndrome

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SUMMARY In 1964 Samman and White described 13 patients with lymphoedema of the lower extremities associated with an unusual dystrophy of the finger and toe nails: this they termed the 'yellow-nail' syndrome. Affected nails were thickened, excessively curved along both axes, very slow growing and of yellowish-grey hue; cuticle and lunula were usually absent and onycholysis was frequently evident[1]. Lower limb lymphangiography in most individuals revealed hypoplasia, or aplasia of the lymphatics,[1–3] similar to that occurring in primary lymphoedema:[4] other patients also developed pleural effusions of high protein content[5–7] or ascites[3 8] suggestive of a more generalised disorder of the lymphatic system. Here we describe a patient in whom the classical 'yellow-nail' syndrome was associated with intestinal and chylous ascites.

Case report

The patient, a 57 year old ex-collier, first presented in May 1981 with a three month history of anorexia, weight loss, abdominal swelling, and exertional dyspnoea. Examination revealed a right sided pleural effusion, ascites and bilateral pitting oedema of the ankles: central venous pressure was not raised and urine was negative for protein.

Investigations revealed a normal haemoglobin concentration (12·8 g/dl), total white count of $8{\cdot}7 \times 10^9$/l with lymphopenia $0{\cdot}8 \times 10^9$/l and erythrocyte sedimentation rate of 57 mm in one hour. The serum albumin was 35 g/l (N: 34–46 g/l) and globulin was 40 g/l (N: 20–36 g/l): remaining biochemical profile was normal, as were immunoglobulin levels. Chest radiograph confirmed a right sided pleural effusion and also revealed bilateral nodularity consistent with pneumoconiosis: sputum examination was negative for acid fast bacilli and malignant cells. Samples of pleural and ascitic fluid were chylous in appearance, with an identical protein content of 52 g/l; pleural biopsy was normal. Lymphangiography was unsuccessful because of lack of uptake of dye from the webs of the toes. Over the next two years the amount of ascites progressively increased and repeated pleural aspirations were carried out to control the effusion. He was then referred to Hope Hospital for further study.

On examination he was thin and pigmented with extensive leg oedema: there were signs of a right effusion. The upper limbs were not oedematous. Finger and toenails were uniformly and equally abnormal, being thickened, dystrophic (Fig. 1) and of a yellowish-grey hue; lunulae were absent. The patient stated that he rarely needed to cut his nails, but was unable to remember how long they had been abnormal.

A barium follow through examination (Fig. 2) showed extensive mucosal oedema with prominent folds throughout the jejunum. Computed tomographic scanning of the abdomen failed to identify evidence of intra-abdominal lymphadenopathy. At laparotomy, carried out in order to insert a peritoneovenous (Le Veen) shunt and to repair a para-umbilical hernia, a two foot length of diffusely thickened proximal jejunum was noted. Chyle oozed freely from its serosal aspect, but dilated lymphatics were not identified either within the serosa or mesentery. No other abnormality of the intestine could be detected on careful inspection and palpation; full thickness biopsy was not done

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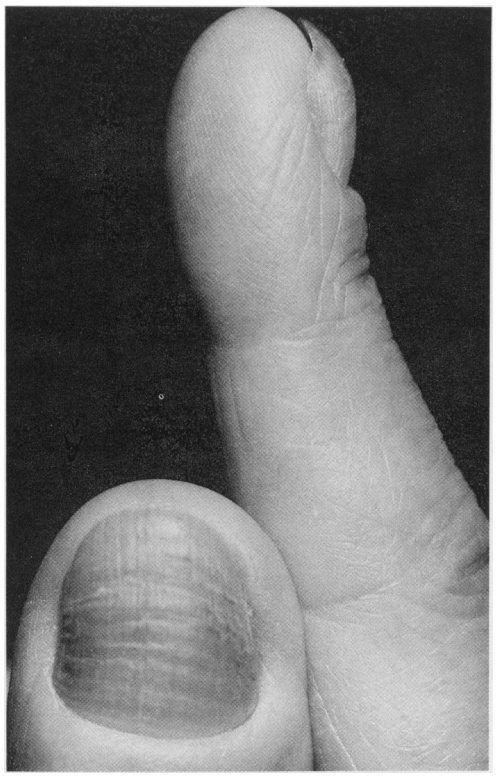

Fig. 1 *Thumb and index finger of right hand, showing dystrophic appearance of nails, horizontal ridging, and increased lateral curvature.*

in view of the high risk of fistula formation. Also, because of the diffuse radiological abnormalities, resection was not attempted. Postoperatively, a peroral jejunal biopsy was carried out which showed features of intestinal lymphangiectasia (Fig. 3) with gross dilatation of the central lacteals and preservation of villous and crypt architecture. Measurement of faecal ^{51}Cr-albumin loss[9] showed significant intestinal protein leakage, 3·5% of an intravenous dose of 4mBq $CrCl_3$ being detected in faeces over the following eight days (normal range <1%). He was started on a diet low in long chain triglycerides and supplemented with medium chain triglycerides. Over the following 12 months the Le Veen shunt continued to drain the peritoneum and hence prevent ascites formation. Further pleural aspirations were, however, necessary and the nail abnormalities persist.

Discussion

While both the 'yellow-nail' syndrome[3] and intestinal lymphangiectasia[10] have each been separately recognised as manifestations of a more generalised lymphatic dysplasia, the co-existence of these two conditions in the same individual has not been previously recognised. Indeed, despite the frequent association of lymphatic abnormalities in the lower limbs[2] and pleura,[11] intestinal involvement appears to be distinctly unusual in the 'yellow-nail' syndrome.[3]

Dwek and Greenberg[8] described a 48 year old woman with yellow nails, diarrhoea, and ascites. Neither radiographic examination nor biopsy of the small intestine was done in this case, and laparotomy revealed no gross abnormality of the intestine. Jejunal biopsy, however, was carried out in one of a group of patients reported by Marks and Ellis.[12] This 53 year old man presented with yellow nails, pedal oedema, pleural effusions and persistent hypoalbuminaemia. Despite absence of gastrointestinal symptoms or evidence of gastrointestinal protein loss, the biopsy showed 'lymphatic dilatation'; whether this abnormality represented classical intestinal lymphangiectasia, or to what extent the intestinal tract was involved, cannot be deduced from that report.

The intestinal mucosa of our patient revealed the classic appearances of intestinal lymphangiectasia,[13] although the involvement only appeared to be grossly localised to the proximal jejunum. Nevertheless, it may be postulated that the chylous ascites resulted from constant oozing of lymph from this abnormal segment, as observed at laparotomy. While isolated instances of abnormalities of the cysterna chyli[14] and the thoracic duct[10] have been described in association with intestinal lymphangiectasia, the nature and location of the lymphatic obstruction remains obscure in most cases, as in ours.[15] In the patient described in this report blockage of cysterna chyli or thoracic duct certainly seem unlikely as neither mesenteric or serosal lymphatics were dilated. Electron microscopic studies of intramucosal lymphatics have also failed to identify any consistent structural abnormality that might explain the lymphatic dilatation and exudation.[16 17]

Solal-Celigny and colleagues[11] have investigated the pathogenesis of the frequently associated pleural effusions. They undertook detailed light and electron microscopic examination of the pleura in their patient with the 'yellow-nail' syndrome and recurrent pleural effusions and described dilated ectatic lymphatic capillaries in the visceral pleura from which the pleural exudate originated. In view of the associated ascites in our patient it is possible that leakage of peritoneal fluid into the thorax may have been responsible for his pleural effusion; as has been

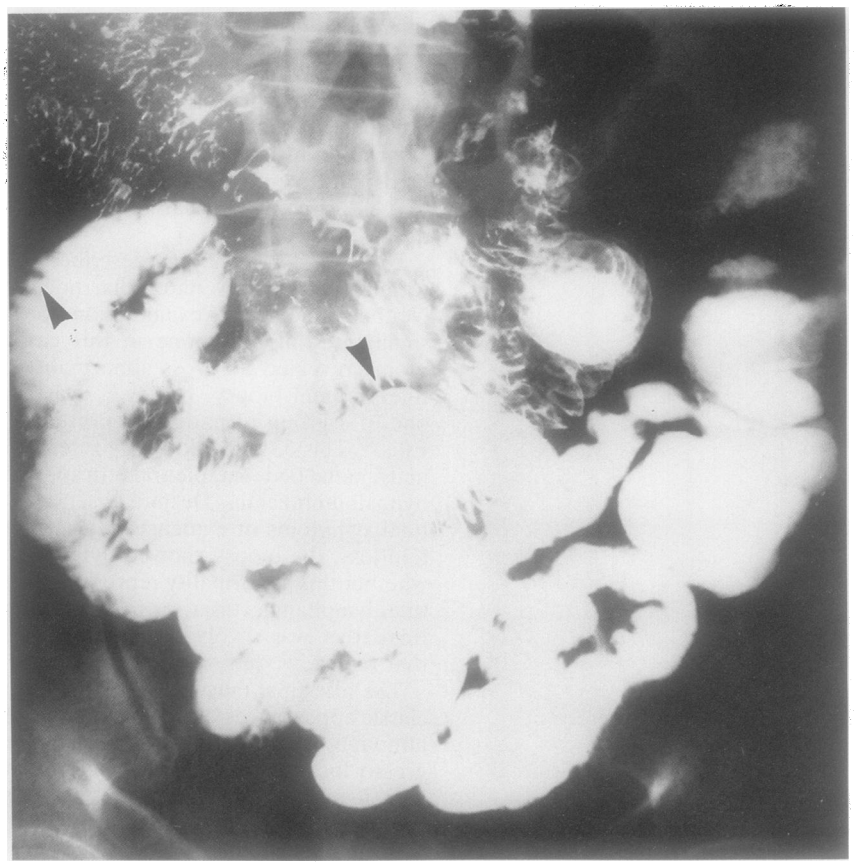

Fig. 2 *Barium follow through examination showing mucosal abnormality involving extensive portion of proximal small intestine (arrowed). Mucosa appears oedematous with prominent folds.*

well described in other patients with ascites of either hepatic[18] or pancreatic[19] origin. The recurrence of pleural effusions after successful drainage of ascites, however, suggests that this latter mechanism was not of primary importance in this instance.

The pathogenesis of the yellow nails remains obscure, and in one study no abnormality in either lymphatic structure or lymph drainage from the affected nail beds could be shown ultrastructurally thus suggesting that the nail abnormalities are not secondary to abnormal lymphatic drainage.[12] These characteristic nail changes, however, serve as important markers of extensive lymphatic abnormalities which may result in regional lymphoedema, recurrent pleural effusions, or ascites. The case outlined in this report adds intestinal lymphangiectasia to this list of systemic abnormalities in the 'yellow-nail' syndrome and also indicates that careful examination of the nails should be part of the assessment of any patient with protein losing enteropathy or unexplained ascites.

References

1 Samman PD, White WF. The "yellow-nail" syndrome. *Br J Dermatol* 1964; **76:** 153–7.

2 Muller RP, Echternacht-Happle PK, Happle R. Roentgenographic and clinical signs in yellow nail syndrome. *Lymphology* 1979; **12:** 257–61.

3 Samman PD. The yellow nail syndrome. *Trans St John's Hosp Dermatol Soc* 1973; **59:** 37–8.

4 Kinmonth JB, Taylor GW, Marsh JD. Primary lymphoedema: clinical and lymphangiographic studies of a series of 107 patients in which the lower limbs were affected. *Br J Surg* 1957; **45** 1–10.

5 Emerson PA. Yellow nail, lymphoedema and pleural effusions. *Thorax* 1966; **21** 247–53.

6 Dilley JJ, Kierland RR, Randall RV, Shick RM.

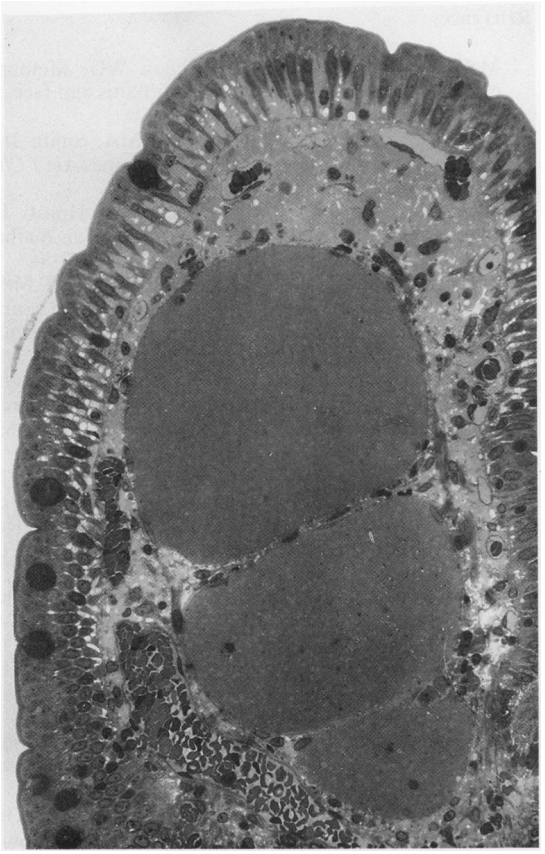

Fig. 3 *1 μm epon toluidine blue stained section of upper jejunal mucosa reveals typical appearances of intestinal lymphangiectasia. Central area of the villus is occupied by grossly dilated lacteals: there is oedema of remaining lamina propria, but epithelium is intact (original magnification: ×825).*

Primary lymphedema associated with yellow nails and pleural effusions. *JAMA* 1968; **204:** 122–5.

7 Hiller E, Rosenow EC, Olsen AM. Pulmonary manifestations of the yellow nail syndrome. *Chest* 1972; **61:** 452–8.

8 Dwek JH, Greenberg GM. Yellow nails, lymphoedema and pleural effusions. *N Y St J Med* 1973; **73:** 1093–7.

9 Rubini M. Sheehy TW. Exudative enteropathy. A comparative study of $^{51}CrCl_3$ and ^{131}I–PVP. *J Lab Clin Med* 1961; **58:** 892–8.

10 Pomerantz M, Waldmann TA. Systemic lymphatic abnormalities associated with gastrointestinal protein loss secondary to intestinal lymphangiectasia. *Gastroenterology* 1963; **45:** 703–11.

11 Solal-Celigny P, Cormier Y, Fournier M. The yellow nail syndrome. Light and electron microscopic aspects of the pleura. *Arch Pathol Lab Med* 1983; **107:** 183–5.

12 Marks R, Ellis JP. Yellow nails. A report of 6 cases. *Arch Dermatol* 1970; **102:** 619–23.

13 Waldman TA, Steinfeld JL, Dutcher TF, Davidson JD, Gordon RS Jr. Role of gastrointestinal system in "idiopathic hypoproteinaemia". *Gastroenterology* 1961; **41:** 197–207.

14 Mistilis SP, Skyring AP, Stephen DD. Intestinal lymphangiectasia. Mechanism of enteric loss of plasma-protein and fat. *Lancet* 1965; **1:** 77–80.

15 Jeffries GH. Protein-losing enteropathy. In: Sleisenger MH, Fordtran JS, eds. *Gastrointestinal disease – pathophysiology, diagnosis, management.* Philadelphia, WB Saunders, 1983: 280–8.

16 Dobbins WO III. Electron microscopic study of the intestinal mucosa in intestinal lymphangiectasia. *Gastroenterology* 1966; **51:** 1004–17.

17 Bujanover Y, Liebman WM, Goodman JR, Thaler MM. Primary intestinal lymphangiectasia: case report with radiological and ultrastructural study. *Digestion* 1981; **21:** 107–14.

18 Johnson LF, Loo RV. Hepatic hydrothorax: studies to determine the source of the fluid and a report of thirteen cases. *Ann Intern Med* 1964; **61:** 385–401.

19 Ranson JHC. Acute pancreatitis. *Curr Probl Surg* 1979; **16:** 1–84.