

Neurofibrosarcoma in Von Recklinghausen's disease presenting with hypochromic anaemia

J. M. BELL
M.B., M.R.C.P.

A. E. S. RITCH
M.B., M.R.C.P.

I. A. DONOVAN
M.D., F.R.C.S.

Dudley Road Hospital, Birmingham B18 7QH

Summary

A patient with Von Recklinghausen's disease who developed a retroperitoneal neurofibrosarcoma is described. The presenting clinical picture was one of hypochromic anaemia with a large mass palpable in the left hypochondrium. At operation the tumour was found to be invading the small intestine with resultant blood loss. The patient had presented 21 years before with unexplained severe iron deficiency anaemia.

KEY WORDS: neurofibrosarcoma, hypochromic anaemia, abdominal mass.

Introduction

Sarcomatous change in the neurofibromata of patients with Von Recklinghausen's disease is an uncommon but well-recognized complication (Knight, Murphy and Gottlieb, 1973). Its incidence rises with age and increasing length of follow-up (Thompson *et al.*, 1979). A case is reported of a patient with neurofibromatosis who developed a retroperitoneal neurofibrosarcoma, which presented with hypochromic microcytic anaemia and an abdominal mass.

Case report

A 72-year-old retired nurse was referred to the Geriatric Day Hospital because of gradually deteriorating mobility and increasing unsteadiness on her feet for a period of about eight months. She had been admitted to hospital one year before when hypertension and ischaemic heart disease had been diagnosed. Haemoglobin at that time was 11.5 g/dl and the blood film showed a hypochromic, microcytic picture. She was said to have had pericarditis 21 years before, although subsequent inspection of her old notes showed this was a clinical diagnosis unsupported by changes in her electrocardiogram. At that time (1959) she was found to have a microcytic,

hypochromic anaemia (haemoglobin 6.1 g/dl). A brief entry in the notes recorded 'spleen or left kidney palpable'. Testing for faecal occult blood was positive and a barium meal showed some coarsening of mucosal folds in the duodenum, but no evidence of ulceration. A diagnosis of a healed duodenal ulcer was made and she was treated with oral iron. When discharged from follow-up two months later her haemoglobin had risen to 12.2 g/dl.

On examination at the Day Hospital she was pale with multiple skin nodules and café-au-lait spots over her trunk and upper limbs. Blood pressure was 130/70 mmHg. A firm, smooth, rounded mass moving with respiration was palpable in the left hypochondrium. It was initially thought to be an enlarged spleen. Her full blood count showed haemoglobin 8.2 g/dl and a white cell count of 16.4×10^9 /litre with a polymorph leucocytosis. The film showed hypochromic red cells with anisocytosis and polychromasia. The erythrocyte sedimentation rate was 107 mm/hr.

One week later, her mobility had deteriorated further and she was admitted for further investigation. She now complained of anorexia and pain in the left hypochondrium for 48 hr.

A repeat full blood count showed that her haemoglobin had fallen to 7.3 g/dl. Faecal occult blood tests were positive on three occasions and an isotope scan of liver and spleen was reported as normal. Active gastro-intestinal bleeding was suggested by the fall in haemoglobin associated with a hypochromic picture and positive faecal occult blood test.

She was then transfused with four units of packed cells and her haemoglobin increased to 13.6 g/dl. Barium meal and follow-through showed ulceration in the upper jejunum just distal to the duodeno-jejunal flexure. A mass probably arising below the left kidney was also seen, displacing the small bowel. Ultrasound of this mass showed it to be solid with

large cystic area and a large blood vessel supplying it. It was anterior to and separate from the left kidney. A diagnosis of neurofibroma or neurofibrosarcoma was, therefore, made.

At operation a large retroperitoneal tumour was found which was invading the mesentery of the descending colon and across the midline into the root of the small bowel mesentery. The upper jejunum and fourth part of the duodenum were intimately involved by the tumour. It was treated by left hemicolectomy and resection of the upper jejunum and fourth part of the duodenum, together with the main bulk of the tumour which was retroperitoneal. Initially the patient made good progress, but nine days post-operatively she suddenly deteriorated with severe dyspnoea and epileptiform convulsions and died.

Histology of the tumour showed it to be a highly necrotic and vascular neurofibrosarcoma, which in one area was infiltrating into the lumen of the small bowel. It measured 11 × 8 × 6 cm.

Post-mortem examination showed bronchopneumonia. There was no residual tumour tissue and no further neurofibromata was found in the bowel.

Comment

Sarcomatous change in the neurofibromata of patients with neurofibromatosis is a well-recognized complication of the disease. It becomes more common with increasing age and the incidence ranges from 4.4% (Knight *et al.*, 1973) to 66% (Das Gupta, 1969).

In patients with generalized neurofibromatosis estimates of the incidence of enteric neurofibromata range from 11% (Das Gupta, 1969) to 25% (Davis and Berk, 1973). However, malignant change in these tumours has rarely been reported (Thompson *et al.*, 1979). Previously reported series (River, Silverstein and Tope, 1956; Sivak, Sullivan and Farmer, 1975; Devereux *et al.*, 1975) show that neurogenic tumours arising in the small bowel frequently cause either acute or chronic gastro-intestinal haemorrhage.

Bleeding in such cases is usually due either to stretching and then disruption of the mucosa overlying a tumour or to necrosis of a pedunculated tumour, which has outgrown its blood supply (Sivak *et al.*, 1975). It is unusual for chronic gastro-intestinal haemorrhage to be caused by spread of a retroperitoneal tumour to involve the small bowel, as occurred in this case. When the diagnosis was first suspected it was thought that the previously documented iron

deficiency anaemia was caused by blood loss from a gastro-intestinal neurofibroma. However, neither examination of the bowel removed at operation nor inspection of the remaining bowel at post-mortem showed the presence of other neurofibromata. It is possible that the retroperitoneal tumour was present at that time as a palpable mass in the left hypochondrium, as recorded in the notes. It could have given rise to an episode of intestinal bleeding with subsequent healing. Only when the tumour became malignant many years later did further spread and haemorrhage occur. As no definite cause could be determined for the earlier episode of anaemia, it is very likely that the tumour was responsible.

In order to avoid delay in reaching a diagnosis, it is important to maintain a high index of suspicion in patients with neurofibromatosis and evidence of gastro-intestinal haemorrhage. In one series (Sivak *et al.*, 1975) there was an average delay of 2.7 years between the onset of symptoms and arrival at the diagnosis.

Confirmation of the diagnosis may be difficult in some cases as barium studies often fail to demonstrate the presence of a tumour, especially if it is situated in the jejunum or ileum (Devereux *et al.*, 1975). These authors have advocated the use of coeliac axis and superior mesenteric arteriography to confirm the presence of an intestinal tumour. However, ultrasound may be useful in the detection of larger tumours making invasive investigation unnecessary.

References

- DAS GUPTA, T.K. (1969) Multiple neurofibromatosis (Von Recklinghausen's disease). *Proceedings of the Institute of Medicine of Chicago*, **27**, 254.
- DAVIS, G.B. & BERK, R.N. (1973) Intestinal neurofibromas in Von Recklinghausen's disease. *American Journal of Gastroenterology*, **60**, 410.
- DEVEREUX, R.B., KOBLLENZ, L.W., CIPRIANO, P. & GRAY, G.F. (1975) Gastrointestinal haemorrhage—an unusual manifestation of neurofibromatosis. *American Journal of Medicine*, **58**, 135.
- KNIGHT, W.A., MURPHY, W.K. & GOTTLIEB, J.A. (1973) Neurofibromatosis associated with malignant neurofibromas. *Archives of Dermatology*, **107**, 747.
- RIVER, L., SILVERSTEIN, J. & TOPE, J.W. (1956) Benign neoplasms of the small intestine, a critical comprehensive review with reports of twenty new cases. *International Abstracts of Surgery*, **102**, 1.
- SIVAK, M.V., SULLIVAN, B.H. & FARMER, R.G. (1975) Neurogenic tumours of the small intestine, review of the literature and report of a case with endoscopic removal. *Gastroenterology*, **68**, 374.
- THOMPSON, W.O., CARACHI, R., WOOD, C.B. & SHORT, D.W. (1979) Neurofibrosarcoma of the duodenum in Von Recklinghausen's disease. *British Journal of Surgery*, **66**, 29.

(Accepted 21 May 1982)