

THE VALUE OF X-RAY CHEST SCREENING

A. J. PSAILA

M.D., D.C.H., (Lond.) M.R.C.P. (U. K.), M.R.C.P. (Edin.).

Department of Medicine.

St. Luke's Hospital.

Medical Officer, St. Edward's College.

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Summary

Two cases of serious thoracic disease were discovered on routine Chest X-Ray screening in 150 schoolboys. Both were symptom free and both required thoracic surgery.

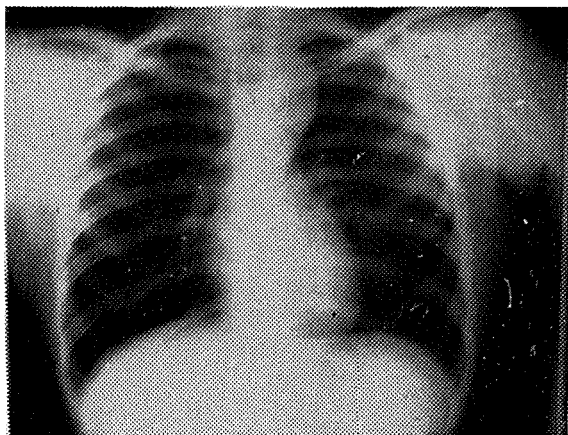
The purpose of this paper is to emphasize and illustrate a well known fact — the value of screening in the community. The example used is Chest X-Ray Screening.

In May 1972, a member of the cater-

ing staff at St. Edward's College, Cottonera, was found to be suffering from tuberculosis. Because of this, public health measures were taken and all the students and staff were screened for evidence of the infection. 285 students attended the school at the time. All students above 10 were Chest X-rayed. Students under 10 were Heaf tested and those who were Heaf positive were further investigated. A total of 150 students were Chest X-rayed. No cases of tuberculosis were found, nor were there any suggestive signs. However, two cases of serious thoracic disease were detected, one student being found to be suffering from ganglioneuroma, the other from coarctation of the aorta.

Case 1 M.G. aged 12

This boy was found to have an upper mediastinal shadow. The Chest X-Ray together with a Barium swallow and screening were reported upon as follows: "There is an oval paramediastinal shadow on the left side of the upper mediastinum. This is situated posteriorly near the spine. It has no connection with the oesophagus and does not pulsate. neurofibroma." (Photograph 1).



X-ray Chest — showing abnormal superior mediastinal shadow.

The patient was symptom free and no abnormal physical signs were detected. His past and family history were irrelevant. The following investigations were carried out and all were normal:— Hb, W.B.C. & film; E.S.R.; Urinalysis; Heaf Test; Casoni Test.

The patient was referred to the Chest Unit at the Brompton Hospital, London, where he was seen jointly by Dr. Michael Joseph and Mr. S.C. Lennox. Tomograms were taken and these confirmed a posteriorly-sited tumour. There was no calcification, no bone deformity nor any bony abnormality adjacent to it. This evidence was in keeping with the diagnosis of a ganglioneuroma.

Dr. Joseph's and Mr. Lennox's views were that this tumour, which was very likely to be benign, should be removed. According to them, removal had the double advantage that the exact nature would be confirmed and detailed follow-

up and its attendant anxieties and uncertainties would be avoided.

The tumour was removed on the 15th November 1972. At left lateral thoracotomy through the upper border of the fifth rib, a large tumour measuring approximately 10 cms X 6 cms X 2 cms was found, lying on the aorta and subclavian artery. It was attached to the chest wall, probably by an intercostal nerve. The tumour was encapsulated and there was no evidence of infiltration. The parietal pleura was opened and the tumour removed by dissection from the chest wall and aorta. Following operation, the patient made an entirely uneventful recovery.

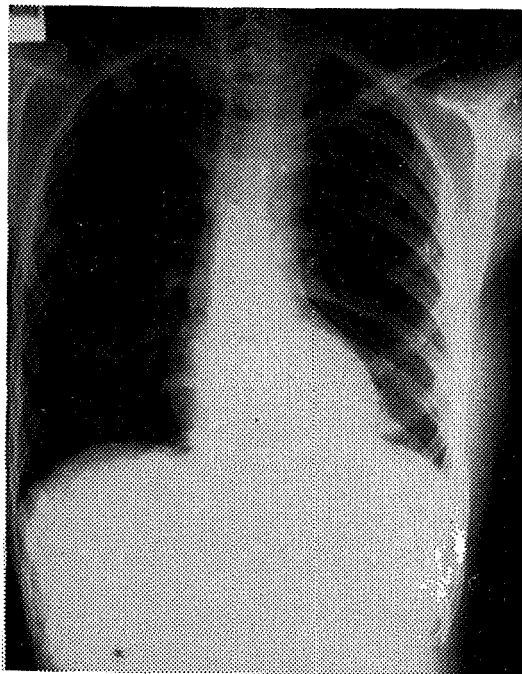
Histology Report:

The specimen was an ovoid tumour with a smooth capsule. The cut surface was homogenous, white and glistening. Microscopically, it was connective tissue with ganglion cells distributed throughout. The appearances were benign: a ganglioneuroma.

Case 2 J.M. aged 14

This boy on routine Chest X-Ray was found to have rib notching. (Photograph 2). He was completely symptom free. Physical examination showed a number of abnormal physical signs diagnostic of coarctation of the aorta.

- a) Prominent carotid and suprasternal pulsations;
- b) Visible, easily palpable pulsations over ribs posteriorly;
- c) BP 150/100 both arms, supine and erect;
- d) Femoral arteries not palpable;
- e) BP in lower limbs not recordable;
- f) Apex beat — foreful, heaving in type and localised, indicating left ventricular hypertrophy;
- g) Grade 3/6 systolic murmur heard along the left sternal edge radiating towards aortic and mitral areas. This murmur was heard posteriorly as well. A systolic ejection click was audible over the aortic area.



X-Ray Chest showing rib notching.

The E.C.G. confirmed left ventricular hypertrophy. X-Ray chest showed: a) notching of ribs; b) left ventricular hypertrophy.

The general condition of the lad was good. Weight — 6 stones. Height — 5 ft. He was well built for his age, rather tall. There were no signs of cardiac insufficiency. This boy was completely symptom free without any history of epistaxis, headaches or claudication. He was one of the best athletes and footballers at his college, and a week or so before the X-Ray screening, he took part in several events in the school's annual athletic meeting.

The patient was referred to St. Mary's Hospital, London, where he was further assessed by Dr. E. Besterman, and Mr. L. Bromley.

At operation, on the 7th December, 1972, Mr. L. Bromley found a coarctation in the aortic isthmus with long segment narrowing. Excision with grafting was required because of the long segment narrowing; the coarcted segment was excised and the gap bridged by a Dacron graft 14 mm. in diameter and 40 mm. in length.

The operation was far from straight forward. Post-operatively, there was still an insufficient flow into the left subclavian artery and it was decided to re-open the chest. Exploration showed a congenital narrowing of the left common carotid, left subclavian artery segment, but no second coarctation. This segment was enlarged by a further patch angioplasty.

The chest was opened again for the third time six hours post-operatively because of the development of a haemothorax — this was evacuated at operation. No definite bleeding point could be isolated, the graft itself being dry and it was thought that the bleeding was most likely to have come from the chest wall.

Following return to the Recovery Room, there appeared to be significant improvement in the peripheral pulses in the left arm. For a few days post-operatively, he required treatment for hypertension. Moreover, he developed the post-pericardiotomy syndrome with pericarditis and fever, but by the 21st December he was well enough to return to Malta.

He remained well since then, he is now normotensive, with good circulation to both lower limbs and left upper limb.

I would like to give credit and thanks to Drs. A. Lanfranco and F. Zammit for their service in the screening required and detection of the abnormalities. My thanks are also due to Dr. T.J. Agius-Ferrante and to Dr. V. Captur for their help in the assessment of these cases.