The Ulster Medical Journal, Volume 63, No. 2, pp. 238 - 240, October 1994.

Case Report

Ruptured silicone breast implant: a misleading chest X-ray

A C Dick, G T Deans, L Johnston, R A J Spence

Accepted 25 July 1994

The diagnosis of a ruptured breast implant can cause considerable confusion. We report a case of a ruptured breast prosthesis mimicking a primary lung tumour, to illustrate one of the diagnostic pitfalls that can occur in patients with silicone implants.

CASE REPORT

A 55 year old female was referred for investigation and possible surgery of a thyroid swelling. She had smoked 30 cigarettes per day for many years. Past medical history consisted of insertion of bilateral silicone breast implants 10 years previously. Clinical examination suggested a multinodular goitre and identified slight thickening superior to the left breast implant. Investigations revealed normal blood tests, and a multinodular goitre was confirmed on ultrasound scan. Routine chest X-ray (Fig. 1) identified an opacity in the left upper lobe showing features suggestive of a primary lung tumour. However, a lateral view failed to detect an abnormality in the thoracic cavity. CT scanning, performed with a view to percutaneous biopsy, revealed that the "lung tumour" was in fact related to the silicone implant (Fig. 2). Subsequent surgery confirmed rupture of the left breast prosthesis.

DISCUSSION

Routine chest radiographs may occasionally suggest the presence of a lung tumour which is found to be absent on subsequent investigations. Such pseudo-tumours can occur with skin lesions, subpleural silicotic nodules,[1] diaphragmatic hernia [2] or ECG leads [3]. Identification is important to prevent unnecessary intervention.

There has recently been debate in the medical [4] and lay press regarding potential complications of augmentation mammoplasty with silicone gel breast implants. Previous radiographic reports have been concerned with the detection

Belfast City Hospital, Belfast BT9 7AB.

A C Dick MB, Senior House Officer.

G T Deans MD, FRCS, Senior Surgical Registrar.

L Johnston, FRCR, Consultant Radiologist.

R A J Spence, MD, FRCS, Consultant Surgeon.

Correspondence to Mr Deans, Department of Surgery, The Queen's University of Belfast, Belfast City Hospital, Belfast BT9 7AB.

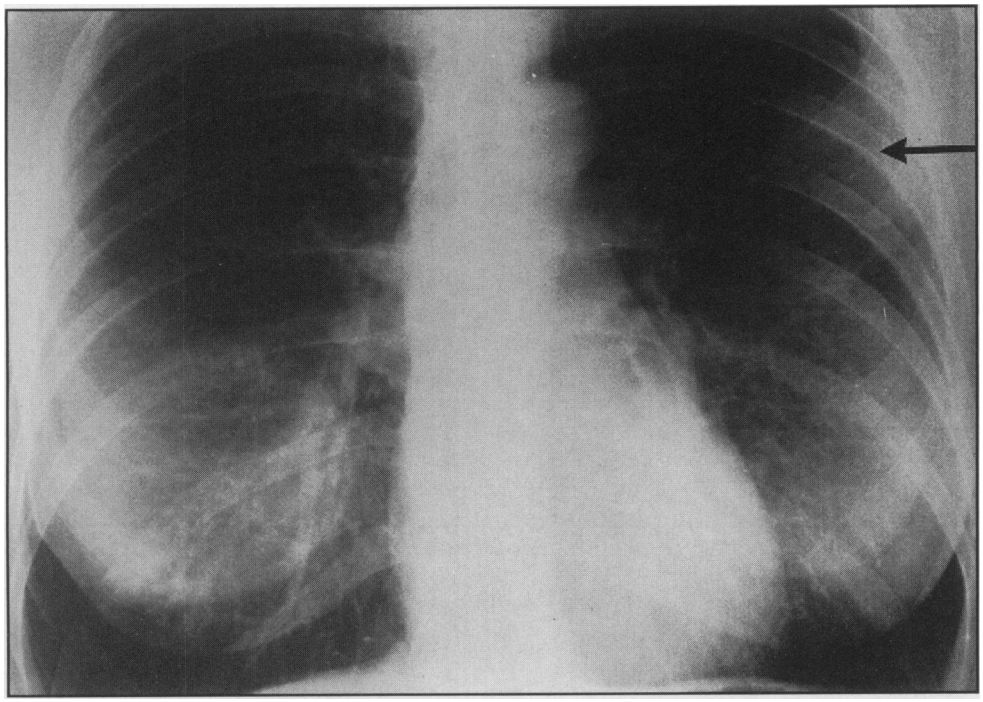

Fig. 1 Chest X-ray showing an opacity in the left upper lobe initially suggestive of a primary lung tumour.

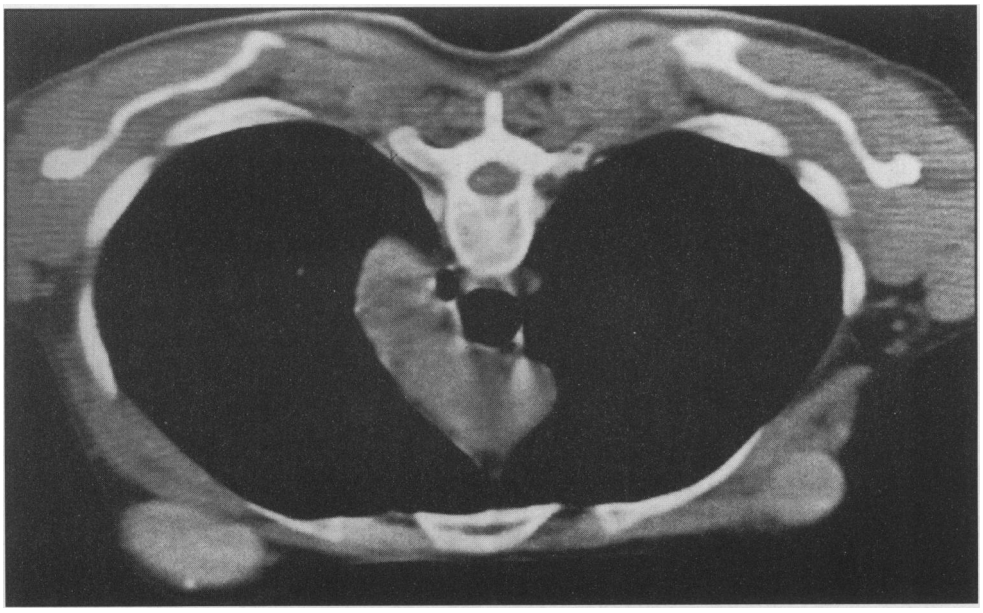

Fig. 2 CT scan of chest showing rupture of the left breast implant.

of malignancy [5] and rupture [6] following insertion of such implants. Silicone implant rupture is however notoriously difficult to diagnose. Clinical and mammographic examinations are reliable only if there has been gel migration away from the implant pocket, when nodules, asymmetry, decreased breast size, tenderness and a softer texture may be present[7]. In such circumstances, mammography is reportedly 90% accurate in diagnosing rupture[7]. The ability of ultrasound mammography to distinguish between silicone gel, muscle, haematoma and fluid collection makes it valuable in the diagnosis of some implant complications[8], and magnetic resonance imaging is attractive for evaluating rupture in younger patients in whom breast irradiation should be minimised [9].

In this case the chest radiographic appearances were characteristic of a primary lung tumour and thoracotomy was planned. It was only during work-up for this that the CT scan revealed the abnormality to be rupture of the silicone implant. The opposite situation, in which a primary lung tumour only became recognised on chest radiograph after removal of silicone breast implants has recently been reported[10]. This case highlights the diagnostic difficulties inherent in patients with silicone implants, and emphasises the extreme caution necessary in interpreting chest radiographs in such cases.

REFERENCES

1. Sugio K, Kaneko S, Yokoyama H, Ishida T, Sugimachi K. Subpleural silicotic nodule radiographically resembling a small bronchial carcinoma. *Respiration* 1991; **58**: 219-22.
2. van der Veen A H, van Geel A N, Slingerland R. An unusual coin lesion in the lung. *Neth J Surg* 1991; **43**: 261-62.
3. Kim T, Messersmith R N, MacMahon H. Pulmonary nodule mimicked by ECG lead artifact. *Chest* 1989; **95**: 237-8.
4. Berkel H, Birdsell D C, Jenkins H. Breast augmentation: a risk factor for breast cancer?. *N Eng J Med* 1992; **326**: 1649-53.
5. Leibmann A J, Kruse B. Breast cancer: mammographic and sonographic findings after augmentation mammoplasty. *Radiology* 1990; **174**: 195-8.
6. Levine R A, Collins T L. Definitive diagnosis of breast implant rupture by ultrasonography. *Plast Reconst Surg* 1991; **87**: 1126-8.
7. Andersen B, Hawtof D, Alani H, Kapetansky D. The diagnosis of ruptured breast implants. *Plast Reconst Surg* 1989; **84**: 903-7.
8. van Wingerden J J, van Staden M M. Ultrasound mammography in prosthesis related breast augmentation complications. *Ann Plast Surg* 1989; **22:** 32-5.
9. Brem R F, Tempany C M, Zerhouni E A. MR detection of breast implant rupture. *J Comput Assist Tomogr* 1992; **16**: 157-9.
10. Fitter A C, Cowie J C. Minerva. *Br Med J* 1992; **305**: 842.