

# SURGICAL MANAGEMENT OF SOLITARY PULMONARY METASTASIS FROM SEMINOMA OF THE TESTIS

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## Summary

A case is described where a solitary pulmonary metastasis arising from Seminoma of the Testis, previously treated by surgery and irradiation, was treated by pulmonary lobectomy. The surgical management of solitary pulmonary metastasis from testicular tumours is discussed.

## Introduction

The development of pulmonary metastases following removal of primary testicular tumours need not be taken as a sign of widespread dissemination, as in the case of testicular tumours there is not only a significant incidence of truly solitary metastasis, but long term survival after their removal has been recorded on a number of occasions.

## Case Report

The patient, a 59 year old man was first admitted to the Surgical department on the 30th May, 1973 (under the care of Mr. R. Attard). He presented with a three month history of painless left testicular enlargement. No other relevant symptoms were present; in particular there was no anorexia, no loss of weight, no urinary tract or chest symptoms. Clinical examination revealed an enlarged left testicle and epididymis, three inches by one and a half inches in size; painless, irregular and hard. The patient appeared to be healthy and was not clinically anaemic. There was no clinical evidence of metastases. No signs of feminization were present. The liver was not palpably

enlarged.

Special investigations which were carried out include E.S.R. 3 mm (1 hour, Westergren) Hb. 96% W.B.C. 9500, Urinalysis was normal. Urine culture showed no significant bacteruria. I.V.P. showed good renal function; no abnormalities were present in the urinary tract. The Mantoux test was positive. Chest X Ray showed minimal scarring in the left lung apex. The haemagglutination inhibition test was positive. On 18-6-73, a left orchidectomy was performed by Mr. Attard Findings at operation were: a small hydrocoele, irregular enlargement of the testis and epididymis. No para-aortic lymph nodes were palpable.

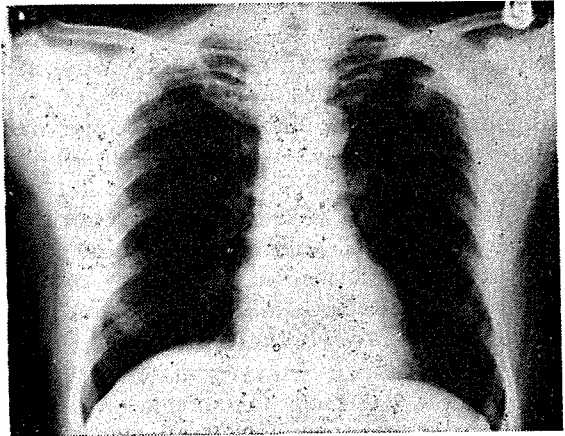
The spermatic cord was resected at the level of the internal ring, and the testis and cord extirpated.

The pathologist reported that examination of the surgically removed specimen showed nodular, homogeneous, pinkish grey tumour replacing testicular tissue. Microscopic examination showed sheets of seminoma cells replacing the greater part of the normal seminiferous tubules. Pleomorphism and mitotic activity were prominent in marginal areas. A diagnosis of seminoma involving the left testis was made.

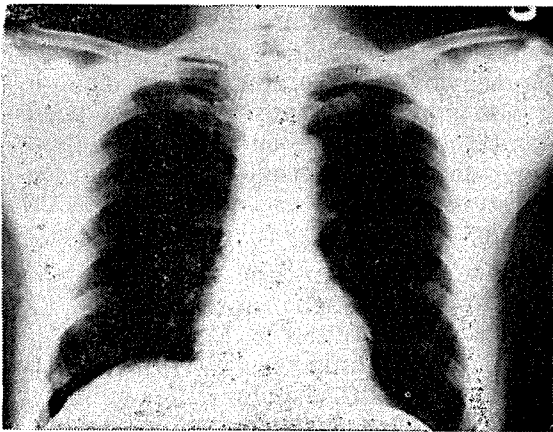
The patient was subsequently referred to the Royal Marsden Hospital where his pelvic and para-aortic areas were irradiated (3000 rads over 4 weeks) by means of a linear accelerator. Prior to irradiation a lymphogram and a liver scan showed no evidence of metastases.

Subsequently the patient had regu-

lar follow-ups at three monthly intervals at which no abnormalities were found. However, on the 3rd August, 1974, a chest X-ray revealed a well defined soft shadow, projecting over the anterior end of the left third rib, consistent with a solitary secondary deposit. A chest X-ray repeated a month later showed the shadow in the left upper zone to have increased in size since the last examination. An H.I.T. was also performed and was negative. The patient was symptomless, in a reasonably good state of health, with good exercise tolerance and no chest pain.



Chest X-ray showing enlarged secondary deposit. (9/9/74).



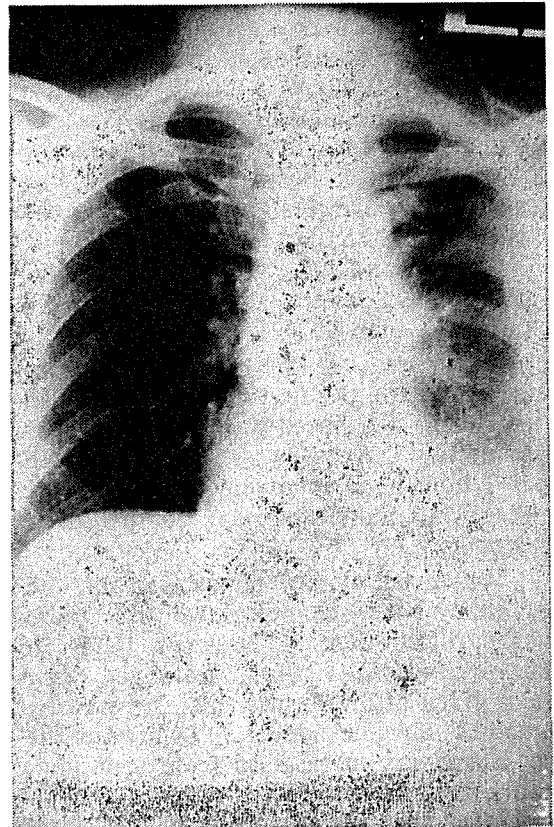
Chest X-ray showing solitary secondary deposit projected over anterior of left third rib. (3/8/74)

On 27/9/74, a left sided thoracotomy was performed by Professor V.G. Griffiths. At operation it was found that the left lobe had a one inch diameter nodule in its substance. Left upper lobectomy was then carried out, and the nodule sent for histological examination.

Microscopic examination showed lymphocytes admixed with seminoma cells mostly arranged loosely in islets and in sheets. Mitotic activity and pleomorphism of cells were not prominent features. A diagnosis of carcinomatous deposit in the left lung was made.

Post-operatively, the patient made a good recovery and chest X-rays showed full re-expansion of the lung. On 12/10/74, the patient was discharged and he has

since, been followed up regularly, for over one and a half years, with no clinical or radiological evidence of recurrence.



Chest X-ray showing re-expansion of lung following Lobectomy. (12/10/74)

## Discussion

The history of the surgery of lung metastases starts with Gerulanos, who, in 1898 reported the removal of part of a lung invaded by a chest wall sarcoma in a 15 year old boy, who, unfortunately, later died. The first successful resection of a metastatic tumour of the lung was reported by Davis in 1962. In 1946 Harrington reported a first successful pulmonary resection for metastatic testis tumour after a left orchidectomy for teratoma.

Wheatley and Howard (1967) concluded that the most favourable primary sites for such operation are: carcinoma of Rectum, Colon, Kidney, Uterus; Osteogenic Sarcoma and Testicular teratoma.

Resections of pulmonary metastases are not common operations and testicular tumours are not common tumours, hence a review of the literature shows that even in the larger series, few cases involving testicular tumours are described. Sellors (1970) described a series of 108 cases of secondary lung cancer in which surgery had seemed justified. five of the primary tumours were in the testis; one patient with a seminoma survived for 7 years after lobectomy for the removal of five metastases. Series describing only the results of surgical resection of secondaries from testicular tumours are few in number. Cleland and Rees (1971) describe 9 cases in their series. Of these 6 survived, 3 for more than 10 years.

Seminomas of the testis are infrequently mentioned in the series reviewed. This can be attributed to two main factors. Adequately treated seminomas (without lymph node involvement) show little tendency to metastasise, as compared to teratomas.

When pulmonary metastases do occur, many surgeons prefer to use radiotherapy. Radiotherapy, however, tends to cause pneumonitis and prolonged pain when given at levels sufficient for curative purposes. Surgical resection of even multiple pulmonary metastases from seminoma of the testis is associated with a good prognosis, as seen in Sellors' series.

A number of important points in

management can be gleaned from the various series which have also been borne out in the case described. Early diagnosis by frequent chest X-rays during follow-up is of great importance as these metastases are often symptom free.

It is important to be sure that the metastasis is indeed solitary, as this is the single most important prognostic factor indicating that the relationship between host and tumour favours the host. Antero-posterior and lateral radiographs, and if in doubt, tomography are essential. Davis et al (1956) defined the solitary nodule as being solitary, six cm., or less, in diameter, round or ovoid, with circumscribed margins and a smooth contour. It is usually lying within pulmonary parenchyma with aerated lung around it, as also minimal, if any associated pneumonitis, atelectasis, or regional lymphadenopathy. There should also be no demonstrable calcium or cavitation in the nodule.

The commonest site for secondary tumours is the sub-pleural position. A more central position is uncommon, and invasion of a bronchus is rare, hence examination of the sputum is of little diagnostic value. Histologically, the metastases may show higher differentiation than the primary tumour as also a slower rate of growth. It is claimed in some series, that the longer the duration of the interval between removal of the primary tumour and discovery of the metastases, the better the prognosis, but this is disputed. Adverse factors include multiple metastases or mediastinal node involvement. Lymphography as well as liver scan to show occult metastases are therefore important. Radiotherapy and/or chemotherapy, may however render some such cases operable.

The timing of surgical intervention is a controversial point. Most authorities advise a few months observation to ensure, as far as possible, the absence of widespread dissemination. Others have recommended immediate operation on diagnosis, in selected cases. The extent of resection at operation is not important, as further spread is usually blood-borne, not

by lymphatic spread; therefore, early ligation of the venous drainage before manipulation of the tumour is especially important.

### Conclusion

The experience of a number of surgeons indicates that surgery may have much to offer in selected cases of lung secondaries from testicular tumours.

Mortality and morbidity following such operations are low and by careful selection and follow-up of cancer cases these results should be improved. Boldness has its rewards.

### Acknowledgements

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