

## **2: The art of intervention: Describe a case where Interventional Radiology played a major role in treating the patient and what you learnt?**

### **Introduction**

Interventional Radiology has an increasing role in cancer management, particularly through percutaneous techniques[1]. In oligometastatic disease - the stage at which cancer is no longer localised, but has not become systemic - disease-free survival or even cure can be achieved with minimally invasive radiologically guided procedures[2].

Radiofrequency ablation (RFA) is one such technique for limited lung metastasis when surgical resection is impossible[3]. In RFA, an alternating current of 400-500Hz is delivered to adjacent tissues by an electrode under image guidance[4]. The proteins within tissues heat and denature[5].

### **Case**

I observed RFA in a 57 year old female with oligometastatic colorectal cancer. Three years previously she had a Hartmann's procedure, later undergoing surgical resection of two liver metastases. Unfortunately, she now had a posterior left upper lobe lung metastasis, deemed too close to pulmonary vasculature to be treated safely with surgery.

She was admitted following routine pre-operative assessment and treatment was delivered under general anaesthetic. The patient was positioned prone to facilitate a posterior approach. Using superficial placement of a small needle, the marker for site of approach was determined using CT guidance. Then, with steady, careful advances and rescanning at each change in direction, the electrode was positioned within the medial and then the lateral aspect of the tumour, to provide adequate coverage of the three-centimetre lesion, for four minutes per treatment.

Following the procedure, the patient was scanned to evaluate immediate treatment efficacy and assess for pneumothorax. Chest drain equipment was made ready, but the procedure was uneventful and without initial complication.

### **Learning Points**

I was struck by similarities to conventional surgical procedures; there was a 'surgical pause', effective teamworking (alongside the radiologist was a radiographer, scrub nurses and anaesthetic team) and implementation of safe patient positioning to optimise approach.

Regarding practical applications, I learned that moving an electrode only millimetres proximally can alter its position distally quite significantly; this highlights importance of frequent scanning to ensure accuracy. Bleeding beyond the probe may distort imaging ventrally (if prone), obscuring tumour margins and rendering the procedure unsafe if image quality is affected enough.

The major risk was pneumothorax; the radiologist told me penetration of each pleural surface incurs a further 50% increased risk. Thus, the patient was rescanned following treatment to assess for pneumothorax. I was interested by the radiologist's comment that he would sooner have one occur now than not: he had the chest drain equipment and anaesthetic support present to manage one quickly and safely, whereas on the ward there may be delay to recognition or junior staff unskilled in siting a chest drain.

Finally, and perhaps most importantly to me, the radiologist met this patient in clinic prior to the procedure, for discussion and consent. She was reviewed by him on the ward the following day. This provided a new perspective to a specialty often considered distant from patients, which excites me about my own career intentions: it is innovative, patient centred and procedure orientated.

**Word Count: 496**

## **References**

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