Expert's comment concerning Grand Rounds case entitled “Synovial sarcoma of the spine: a case involving paraspinal muscle with extensive calcification and the surgical consideration in treatment” (by Junhyung Kim, Sun-Ho Lee, Yoon-La Choi, Go Eun Bae, Eun-Sang Kim, Whan Eoh)

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The authors describe a case of a 29-year-old male with a non-metastatic paraspinal muscle calcified synovial sarcoma [10]. Surgical resection achieved adequate margins (complete excision) and the patient received adjuvant external beam radiotherapy (60 Gy). Active surveillance has been undertaken postoperatively and the patient remains disease free at 2 years.

The only aspects of soft tissue sarcoma (STS) care that the surgeon has control over is the avoidance of inappropriate surgery (the “whoops” procedure) [19] and the successful achievement of complete excision. The authors are to be congratulated on the recognition of a potentially malignant tumour, the use of an appropriate biopsy

technique and achieving a complete (but marginal) excision without tumour spillage.

There is no doubt this patient required surgical excision of their tumour, but there are aspects of the care that are controversial.

Diagnostics and staging

In keeping with most STSs, this patient presented with a lump. In many cases, it is painless, but this patient had referred pain and restriction of movement. Appropriate imaging investigations are typically plain radiography, ultrasound and magnetic resonance imaging (MRI).

Synovial sarcoma can share imaging features with a number of benign and malignant conditions [12]. There are, however, characteristics that can suggest the diagnosis. On plain radiology, there may be a well-defined soft tissue mass or punctuate calcification. Extensive calcification (such as present in this case) is unusual, but when present may mimic malignant bone tumours. Ultrasound will show a focal soft tissue lesion and localise the tumour as well as enabling assessment of size.

The main assessment of the primary soft tissue tumour is appropriately utilised MRI. MRI features of a synovial sarcoma are typically a clearly delineated heterogeneous mass, which can frequently invade, touch or erode bone [8]. There are often internal septae present. Approximately, 90 % of synovial sarcomas are well defined [12]. Calcification is present in up to 30 % of synovial sarcomas [11]. Core needle biopsy is the gold standard for diagnosis of STSs [2], and biopsy incisions should be placed in such a way to allow removal at the time of definitive resection.

Management of all STSs should be under the care of a multidisciplinary team. Staging investigations should be

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performed prior to surgical resection to assess whether the tumour is metastatic, unless neurologic impairment or deterioration render the case emergent. CT scan of the thorax is the conventional staging investigation; and the role of PET-CT is controversial [2].

In the event that the sarcoma is metastatic, chemotherapy usually with doxorubicin and ifosfamide is the initial treatment of choice.

Synovial sarcoma is the fourth most common soft tissue sarcoma accounting for 2–10 % of cases and the majority occurs in the extremities [11].

Controversies in synovial sarcoma management

Sarcoma management is usually multimodal. Surgery, radiotherapy and chemotherapy can all be utilised, and there are arguments for all three, particularly in synovial sarcoma. Wide excision with radiotherapy remains the standard treatment for most STSs.

Surgery If wide excision with clear margins is possible, then this is usually the first line treatment of choice. The biopsy tract should be excised at the time of definitive resection along with a cuff of normal tissue. If contaminated margins are likely then an alternative management strategy is desirable. Survival rates in synovial sarcoma are better in younger patients and those in whom wide surgical margins can be achieved [22].

Radiotherapy Normally, given as an adjuvant treatment following surgery for large (>5 cm), deep and high-grade soft tissue sarcomas. If surgical resection is challenging, then induction radiotherapy can be utilised to enable a more marginal resection. For intermediate grade tumours with close or positive margins radiotherapy should be considered [2]. For preoperative radiotherapy, a lower dose is used (50 Gy) as opposed to 60–66 Gy.

Chemotherapy Usually reserved for metastatic disease in soft tissue sarcomas, but in synovial sarcoma has been used either as induction treatment or adjuvant. The evidence is not, however, clear-cut [5].

Spillane et al. [16] showed a response to chemotherapy in young adults. Eilber [3] treated 68 adult patients with chemotherapy (ifosfamide based) and had an improved disease specific survival.

The largest series of 237 patients, from the French Sarcoma Group treated by neoadjuvant or adjuvant chemotherapy (doxorubicin and/or ifosfamide regime) showed no improvement in overall survival, local recurrence-free survival or distant recurrence-free survival [7]. The conclusion from the authors was that neoadjuvant or adjuvant chemotherapy should not be used outside the trial setting. Similarly, Singer et al. [15] demonstrated no survival benefit for chemotherapy.

Follow-up, surveillance and survival

Five-year survival in synovial sarcoma has been reported at around 60 % [1], but calcified synovial sarcoma often has a considerably better prognosis (5 year survival up to 82 %) [14, 18]. Tateishi et al. [17] also showed that calcification was associated with improved disease free survival. A tumour size of less than 4 cm is also associated with an improved prognosis [13].

Two-year follow-up for this patient is short-term only. We have had two patients in whom their synovial sarcoma recurred in excess of 20 years after primary diagnosis. MRI surveillance is controversial with some authors [20] recommending its use, and others [9, 21] less convinced. Regular CT scanning exposes the patient to high doses of ionising radiation, and in the UK, standard follow-up for detection of lung metastases would be chest radiology, providing the initial CT was clear [6]. Similarly, ESMO guidelines would support clinical assessment of the primary site and regular chest X-rays at 3 month intervals for the first 2–3 years (then 6 monthly to 5 years and annually thereafter) [4].

Conclusions

The authors have achieved an early successful oncological outcome in a primary soft tissue sarcoma of the paraspinal musculature. The favourable prognosis calcified variant of synovial sarcoma is unusual, but should still be managed along standard sarcoma principles. Staging should be performed on diagnosis and before resection. Wide excision is the treatment of choice with adjuvant radiotherapy. Surveillance should be carried out as per guidelines.

Conflict of interest None.

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