

Streamlining multidisciplinary care in sarcoma management

Dear Editor,

Sarcomas are rare and heterogenous tumours that constitute fewer than 1% of adult solid cancers.¹ Owing to their aggressive behaviour, relative rarity and occurrence at multiple anatomical sites, sarcomas can be challenging to treat.² Timely referral to specialist sarcoma centres is thus paramount and reduces the incidence of “whoops” procedures, i.e. the inadvertent excision of an unsuspected soft tissue lump that is subsequently diagnosed as sarcoma.³ Modelled after guidelines from the European Society for Medical Oncology and British Sarcoma Group, the National Cancer Centre Singapore and Singapore General Hospital’s Department of Sarcoma, Peritoneal and Rare Tumours (SPRinT) developed the Sarcoma Pre-Emptive Evaluation and Diagnosis (SPEED) protocol in 2019 to facilitate prompt referrals of sarcomas in Singapore.⁴ Under this initiative, SPRinT welcomes all referrals of lumps suspected to be sarcoma without needing prior imaging. Criteria for referral include at least one of the following 5 FOES, namely, more than 5cm in size; deep to fascia; “ouch,” i.e. painful; enlarging; and stuck to surrounding structures.

To assess the malignancy diagnostic rate and outcomes of the SPEED protocol, a retrospective review was performed for patients referred for a soft tissue lump and underwent surgery at the National Cancer Centre Singapore and Singapore General Hospital under SPRinT over 6 years with comparison between 3-year periods from January 2016 to December 2018 and July 2019 to March 2022.

A total of 177 patients were included. Following SPEED protocol implementation, majority of referrals were from general surgeons (27.4%) and general practitioners (22.6%). Table 1 shows the comparison between the number of referral criteria met in the benign and malignant groups. In both groups, a greater percentage of malignant lesions were >5cm in size compared with benign lumps, where it was statistically significant in the pre-SPEED protocol group ($P=0.009$). In the pre-SPEED protocol implementation group, 1 patient (1.3%) had a benign lump that was deep to the fascia compared with 3 patients (21.4%) with malignant lesions ($P=0.007$). Contrastingly, none of the benign lumps were deep to fascia, whereas only 1 of the malignant lesions (5%) was deep to fascia enlarging

in the post-SPEED protocol group. A significant difference was found ($P=0.038$) between the number of painful lesions in the benign ($n=5$, 7.8%) and malignant cases ($n=5$, 25.0%), following SPEED protocol implementation. Our results show that there was a greater proportion of malignant lesions that met at least 1 of the 5 referral criteria. Although our study is not powered to show individual statistical difference in each criterion, it suggests that the criteria are useful collectively to allow timely diagnosis and management. These findings highlight the importance of recognising the 5 FOES to prompt early referral to a specialised centre.

Following SPEED protocol implementation, there was a relatively higher pick-up rate of 23.8% ($n=20$) of malignancy compared with 15.1% ($n=14$) prior, supporting the beneficial role of this service. Of the malignant cases, majority was sarcoma (80.0%). Although 76.2% of referrals in the current study turned out to be benign, we believe that the SPEED protocol is essential for the provision of good healthcare for patients. Additionally, among the 14 patients who had malignant lesions pre-SPEED protocol implementation, 1 patient underwent a “whoops” procedure prior to referral to our department, whereas there was no occurrence of “whoops” procedures post-SPEED protocol implementation. Extrapolating this information, this referral pathway can prevent the occurrences of “whoops” procedures, which will be critical for the outcomes of sarcoma patients. This is particularly so when inadequate treatment during initial sarcoma surgery performed by a non-sarcoma specialist can result in involved surgical margins, shorter mean time to recurrence and metastasis.^{5,6}

The rationale behind setting up this initiative in Singapore is clearly supported in the literature. The management of sarcoma patients within the network of 26 reference centres in France was found to be associated with better adherence to clinical practice guidelines and improved local relapse-free and event-free survivals.⁷ Another study conducted in British Columbia, Canada reported that patients who were referred prior to surgery were more inclined to undergo complete resection and adjuvant radiation in comparison to patients who were referred following surgery.⁸ Similar to these international referral pathways, the

Table 1. Comparison of referral criteria met between benign and malignant lesions pre- and post-SPEED protocol implementation.

Criteria	Number of benign lesions no. (%)		Number of malignant lesions, no. (%)		P value
	Pre-SPEED protocol (n=79)	Post-SPEED protocol (n=64)	Pre-SPEED protocol (n=14)	Post-SPEED protocol (n=20)	
>5cm in size	23 (29.1)	19 (29.7)	5 (35.7)	9 (45.0)	0.009
Deep to fascia	1 (1.3)	0 (0)	3 (21.4)	1 (5.0)	0.007
Painful	30 (38.0)	5 (7.8)	2 (14.3)	5 (25.0)	0.038
Enlarging	41 (51.9)	27 (42.2)	10 (71.4)	9 (45.0)	0.093
Stuck to surrounding structures	1 (1.3)	3 (4.7)	3 (21.4)	3 (15.0)	0.001

SPEED: Sarcoma Pre-Emptive Evaluation and Diagnosis
Numbers in bold indicate statistical significance with *P* value <0.05.

SPEED protocol is a systematic programme that can augment the diagnosis and treatment outcomes of sarcoma and is highly relevant in Singapore. We believe that our experience can be adapted and applied in different healthcare systems within the region.

There are limitations to our study. Notably, centralising the management of all lumps to a tertiary centre requires some reallocation of healthcare resources and acceptance of a slight change in the doctrine of healthcare provision. To prevent the potential of negatively impacting care for other oncology patients, setting aside dedicated manpower to oversee such a programme is essential for tertiary units. This is similar to the National Health Service system in the UK where dedicated consultants manage “lumps and bumps” clinics, which are run within the sarcoma units of major hospitals.⁹ Furthermore, reducing the possibilities of performing “whoops” surgeries and having a direct seamless integration with the sarcoma team in a tertiary centre can translate to more cost efficiency in the long run. We believe that adjusting resources to facilitate this referral pathway will enable high-risk cases to be channelled appropriately and promptly. This process will not only require time and concerted effort but more importantly, a slight revamp to the perception of the healthcare system in Singapore.

In conclusion, the SPEED protocol allowed for the timely diagnosis of patients with potential sarcoma and subsequent management in a multidisciplinary team, highlighting the usefulness of an efficient referral system to a dedicated unit specialising in sarcomas. Our experience can serve as reference for other cancer centres to augment the diagnosis and treatment outcomes of sarcoma.

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