

Lay Summary

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Computational pathology to risk stratify solitary fibrous tumours: an integrated approach using digital pathology, machine learning and genetics.

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Solitary fibrous tumours (SFT) are rare tumours that arise in 'soft tissue' (e.g. muscle, fat) and occasionally in bone. Many SFT are benign and do not recur following surgery but some act in a malignant fashion and spread to other sites of the body. This can cause suffering and be life limiting. Pathologists can't always predict accurately how a SFT will behave. We want to predict more accurately how a SFT will behave so that patients can receive a more personalised treatment plan. This will be achieved by using information extracted from the digitised microscopic images of SFT from about 500 patients and linking it to other information such as the tumour size, genetic abnormalities of the tumours, and patient clinical outcome. Using this information, we will develop mathematical models (artificial intelligence) to predict how a SFT will behave. This computer-aided pathology technology will support pathologists to provide more accurate and reproducible results, which will benefit patients. In addition, studying this disease in greater detail will help the pathologist to have a better understanding of this rare condition.