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Submitting author: Dr Siang Hua, Victor Chan

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Evaluating the Safety and Accuracy Profile of Image-guided Percutaneous Musculoskeletal Biopsies in Children: A Multidisciplinary Team Effort to Provide Optimised Patient Care

Chan SHV (1), Tse KS (2), Cheng SS (3), Lai KC (3), MK Chan (3)

(1) Department of Radiology, Queen Mary Hospital, (2) Department of Radiology and Organ Imaging, United Christian Hospital, (3) Department of Radiology and Imaging, Queen Elizabeth Hospital

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Introduction

Image-guided percutaneous biopsy is an established diagnostic modality for musculoskeletal (MSK) lesions. Percutaneous biopsies have distinct advantages as compared to open surgical biopsy, which have been well-documented in the adult population. These include: reduced wound pain, improved healing and a shorter hospitalisation stay.

Objectives

The authors reviewed the diagnostic yield, accuracy and safety profile of percutaneous paediatric MSK biopsies as a single tertiary-centre multidisciplinary experience.

Methodology

This was a retrospective study reviewing 51 image-guided percutaneous MSK biopsies performed over a seven year period, for children under 18 years of age. 22 computed tomography (CT)-guided biopsies were performed for 21 patients (age range: 3-17 years). 29 ultrasound (US)-guided biopsies were performed for 29 patients (age range: 0-17 years). Patient management was carried out in a multidisciplinary team approach, involving the interventional radiologist, orthopaedic surgeon, paediatrician, anaesthetist and pathologist in a seamless and coordinated effort to provide optimised patient care.

Result

[Results] Of the 22 CT-guided biopsies, 5 were performed under general anaesthesia (23%), and 17 were performed under local anaesthesia (77%). All US-guided biopsies were performed under local anaesthesia (100%). Both modalities had resulted in similar positive diagnostic yields (82% in CT-guided biopsy, versus 86% in US-guided biopsy), with a combined diagnostic yield of 84%. Biopsy accuracy was also similar

(73% in CT-guided biopsy as compared to 76% in US-guided biopsy), with a combined biopsy accuracy of 75%. No significant procedural-related complications were noted (0%). [Conclusions] Image-guided percutaneous MSK biopsies in children demonstrate high diagnostic yield and biopsy accuracy with an excellent safety profile. Systematic planning and a dedicated multidisciplinary team approach is of utmost importance in the clinical and histopathological success of this procedure.