

Curiositas

UNDERGRADUATE QUIZ

Prior to an elective procedure, a paediatrician was asked to review this 14 month old patient after a consultant anaesthetist raised concerns about marks noted on their back.



1. What is the likely diagnosis?
2. Do you have any safeguarding concerns? What evidence could be reviewed to confirm the diagnosis?

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POSTGRADUATE QUIZ

Platelets:	205 x 10 ⁹ /L (200-550)
PT:	11 s (9.3-11.8)
APTT:	60 s (23.4-32.4)
TT:	10 s (14-22)
Fibrinogen:	3 g/dL (1.9-4.0)
Factor (F) VIII:C:	0.1 IU/mL (0.6-1.3)

(PT Prothrombin time, APTT Activated Partial Thromboplastin Time, TT Thrombin time)

A 15 month old boy was referred for a safeguarding assessment by his health visitor after they had noticed significant bruising. On examination he had multiple bruises over bony prominences but also on his arms, buttocks and back. His mother reported frequent falling and had noticed that he tended to bruise easily. On a couple of occasions, she had noticed bleeding from his gums when brushing his teeth and commented on bruising following his vaccinations. There was no family history of bleeding disorders.

1. What are the indications to perform haematological investigations for a child presenting with bruising?
2. What first line haematological investigations would you request?
3. What does this extended coagulation screen suggest might be the cause of this child's bruising and what test is required to confirm the diagnosis?

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HISTORICAL QUIZ



A 7 year old boy was referred with bullous lesions. The paediatrician was asked to review as they were thought to be inflicted burns. The boy had been out all day with his friends and his mother was unaware of any injury sustained.

What is the probable cause of these "scalds"?

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AND FINALLY...

A 3 year old attends the Emergency Department (ED) accompanied by his mother. He is not moving his arm and is very distressed. His mother reports catching her son by his arm as he fell from a swing in a playground. She heard an audible crack at the time and brought him to ED immediately.



1. What does this X ray show?
2. Does the explanation match the clinical finding?
3. What factors might heighten safeguarding concerns?

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CONSIDER CONTRIBUTING TO CURIOSITAS?

Please refer to 'Curiositas: Guidelines for contributors' <http://www.ums.ac.uk/curiositas.html> and email curiositas@ums.ac.uk with your ideas and submissions.

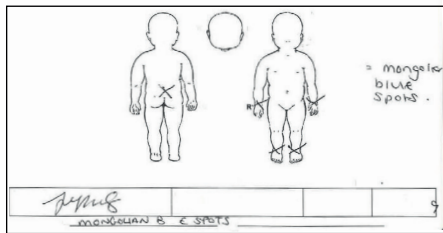


CURIOSITAS: Answers

UNDERGRADUATE QUIZ

1. These are Mongolian blue spots, also known as lumbosacral dermal melanocytosis. This is a congenital lesion (or “birthmark”) where one or several blue/grey, homogenous macules or patches of up to several centimetres appear, usually in the lumbosacral region. Lesions may also be seen at other sites and can appear superimposed. They occur very commonly in South, East and Central Asian, Native American and other non-European babies and are seen infrequently in those of Caucasian descent. These spots are benign, non-tender and do not evolve over short time periods. Although they can persist, they usually regress over the first few years of life, with nearly all disappearing by puberty. The term “Mongolian blue spot” has an interesting history, with some calling for use of a more scientific term rather than one perceived to be based on racial generalisations¹.

2. The main differential diagnosis for this appearance is bruising from child abuse. This would prompt a thorough investigation and non-accidental injury work-up. It is important to always be vigilant for any safeguarding concerns. However, this was not an issue in this case. An important way to differentiate Mongolian blue spots from haematomas is review of the patient’s medical notes. Although the distribution of the lesions and ethnic background of the patient could be useful pointers, previous



documentation of the lesions is the most reassuring and definitive indication of this diagnosis. The Patient Care and Health Record or ‘Red Book’ contains a

body map where these marks should be documented following examination shortly after birth.

¹Zhong, C., Huang, J. and Nambudiri, V. (2019) *Revisiting the history of the “Mongolian spot”: The background and implications of a medical term used today.* *Pediatric Dermatology*, 36, 755-757.

POSTGRADUATE QUIZ

1. It is important to consider haematological investigations in any child presenting with unusual bruising or bleeding out of proportion to the injury sustained. If there are any indicators from the history and/or examination that the child may have a bleeding disorder, haematological investigations should also be performed.

2. First line haematological investigations include a coagulation screen (PT, APTT, TT, fibrinogen), a full blood count and blood film, assays of factor VIII, IX, XIII and Von Willebrand factor (VWF antigen and VWF activity)¹.

3. The extended coagulation screen suggests a diagnosis of either Haemophilia A or Von Willebrand’s disease (prolonged APPT, low levels of FVIII, normal platelets and normal PT). From the history, a diagnosis of VWD is more likely given the evidence of easy bruising and mucosal bleeding. Haemophilia tends to present with joint and soft tissue bleeding along with prolonged or excessive bleeding, common to both conditions. The first line investigation in this scenario is the ristocetin cofactor test². The addition of ristocetin (an antibiotic) to a patient’s plasma, causes VWF to bind to platelets, resulting in agglutination. This is diminished or absent in VWD but normal in Haemophilia A, hence allowing differentiation between the two conditions in most circumstances.

A subtype of VWD (2N VWD) is challenging to discriminate from mild-moderate haemophilia A and therefore genetic testing is indicated to confirm the diagnosis.³

¹RCPCH *Child Protection Companion* (2019). Chapter 9: *Recognition of Physical Abuse*.

²Lissauer T, Carroll W. (2017). *The Science of Paediatrics MRCPC Mastercourse*. London: Elsevier, Royal College of Paediatrics and Child Health.

³Laffan M, Lester W, O’Donnell JS, Will A, Campbell Tait R, Goodeve A et al. (2014). *The diagnosis and management of von Willebrand disease: a United Kingdom Haemophilia Centre Doctors Organisation guideline approved by the British Committee for Standards in Haematology.* *British Journal of Haematology* 167, 453-365.

HISTORICAL QUIZ

These are chemical burns (phytophotodermatitis) inflicted by the sap of the phototoxic plant, giant hogweed. Treatment is the same as for any chemical burn, and post-inflammatory hyperpigmentation may last months or even years. In Northern Ireland, these plants are often found in abundance at the water’s edge of riverbanks or canals. Like so many ornamental invasive plant species introduced to British gardens in the early nineteenth century, it is now widespread in many regions of Europe and North America after its introduction from the Caucasus region of Eurasia.

AND FINALLY...

1. This is an AP film of the patient’s left arm. The obvious finding is a spiral fracture of the mid shaft of the humerus.

2. Humeral fractures are particularly concerning for abuse in younger children. A meta-analysis showed that a child who is under the age of 3 years presenting with a humeral fracture has a 1 in 2 chance of having been physically abused.¹ Spiral and oblique fractures are the most common abusive humeral fracture types found in children but can occur accidentally. Spiral fractures occur due to a rotational force applied to the bone. The history given in this case would explain the clinical finding of a spiral fracture. Any explanation given by caregivers must be consistent with both the mechanism of injury and the child’s developmental age.



3. Skeletal fractures are a common childhood injury. Approximately one third of children will experience a fracture before the age of 16. Fractures are also commonly found in up to one third of children who have suffered physical abuse.² It is therefore vital that clinicians are able to differentiate signs of intentional and unintentional injury. Younger age, an inconsistent or implausible history, multiple injuries and delayed presentation are factors that, when present in a child with a fracture, should trigger consideration of abuse.

¹Kemp AM, Dunstan F, Harrison S, Morris S, Mann M, Rolfe K et al. (2008) *Patterns of skeletal fractures in child abuse: systematic review.* *BMJ* 337: a1518

²RCPCH *Child Protection Companion* (2019) Chapter 9: *Recognition of physical abuse*.



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