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CASE REPORT

Morel-Lavallee Lesion: A Forgotten Cause of Bleeding in Trauma

KHOR CC, TAN TL

Department of Emergency Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia.

ABSTRAK

"Morel-Lavallee lesion" adalah kecederaan tisu lembut yang berlaku akibat daripada daya trauma pada permukaan kulit. Ini menyebabkan permisahan lapisan kulit and tisu subkutaneus dan menghasilkan darah beku. Laporan kes ini menggambarkan seorang pesakit lelaki berusia 22 tahun yang terlibat dalam kemalangan jalan raya. Dia mengadu kesakitan dan bengkak pada bahagian belakang badan. Dia telah dirawat sebagai kecederaan tisu lembut dan dimasukkan ke hospital untuk mengawal tahap kesakitan kecederaan. Pada hari pertama selepas kemalangan, bahagian belakang badan pesakit semakin membengkak. Tahap hemoglobin pesakit menurun dari 12.2 g/dL ke 10.7 g/dL. Diagnosis "Morel-Lavallee lesion" telah dibuat. Pada mulanya tiada prosedur pembedahan dirancang. Walau bagaimanapun, memandangkan kebengkakan semakin meningkat, prosedur aspirasi di sisi katil dan sedutan melaui kateter jenis ekor-khinzir telah dibuat untuk mengalirkan darah beku. Jumlah cecair darah beku dikeluarkan adalah sebanyak 2.05 liter. Kesimpulannya, "Morel-Lavallee lesion" adalah kecederaan tisu lembut yang jarang berlaku tetapi mampu menyebabkan pendarahan yang serius selepas trauma berlaku.

Kata kunci: kecederaan, darah beku, trauma

ABSTRACT

The Morel-Lavallee lesion is a rare soft tissue injury that occurs due to traumatic shearing force on skin surface causing separation of skin and subcutaneous tissue resulting in hematoma. This case report depicts a 22-year-old gentleman who was involved in a motor vehicle accident. He complained of pain and swelling over lower back. He was treated for soft tissue injury and admitted for pain control. One day post-trauma, he complained of increased swelling over the back. His

Address for correspondence and reprint requests: Tan Toh Leong. Department of Emergency Medicine, Faculty of Medicine, Universiti Kebangsaan Malaysia Medical Centre, Jalan Yaacob Latif, Bandar Tun Razak, 56000 Cheras, Kuala Lumpur, Malaysia. Tel: +60391456482 Fax: +60391456577 E-mail: sebastianttl@yahoo.co.uk

hemoglobin dropped from 12.2g/dL to 10.7g/dL. Diagnosis of Morel-Lavallae lesion was made. Initially no surgical intervention was planned. However, in view of worsening of swelling, bedside aspiration was performed and subsequently a pigtail catheter was inserted to drain the hematoma. In total, 2.05 litre of liquefied hematoma was drained. Thus, Morel-Lavallee lesion is an uncommon soft tissue injury that can cause significant bleeding following trauma.

Keywords: degloving injuries, hematoma, trauma

INTRODUCTION

The Morel-Lavallee lesion (MLL) is first described by French physician Maurice Morel-Lavallee in 19th century. It is a rare soft tissue injury that occurs due to a traumatic shearing force on the skin surface which causes separation of skin and subcutaneous tissue from underlying fascia (Weiss et al. 2015). Disruption of lymphatics drainage and blood supply in the affected region occurs. This precipitates the accumulation of fluid in this potential space causing hematoma (Nickerson et al. 2014). Common locations of this internal degloving injury include lateral hip or greater trochanter, pelvis, thigh and knee.

CASE REPORT

A 22-year-old gentleman was brought to hospital following a motor vehicle accident. He was sitting behind a motorcycle when his friend's motorcycle skidded while trying to avoid a pedestrian. He fell over the right side but did not lose his consciousness. After the fall, he complained of pain and swelling over his lower back. On examination, he was pink and alert. His Glasgow coma scale was 15/15, blood pressure was 147/90, heart rate was 96 beats per minute, and his oxygen saturation was 97% under room air. There were superficial abrasion wounds over posterior lumbar region. He was able to move his all four limbs. Radiological examination showed no fracture. Initially he was treated for soft tissue injury and admitted for pain control.

A day post-trauma, patient complained of increased swelling over the back. On examination, there was a fluctuant area of 10cm X 5cm over his left lumbar region (Figure 1). His hemoglobin level has dropped from 12.2g/dL to 10.7g/dL. Diagnosis of lumbar Morel-Lavallee lesion was made. Initially no surgical intervention was planned. He was prescribed with prophylaxis antibiotic. However, the swelling increased over the next few days. On day 5 post trauma, a bedside ultrasound and aspiration of the fluctuant site over lumbar region performed and drained 350ml of liquefied hematoma. A second aspiration was performed the next day in view of recurrent swelling over the same site. An amount of 300ml of liquefied hematoma was drained

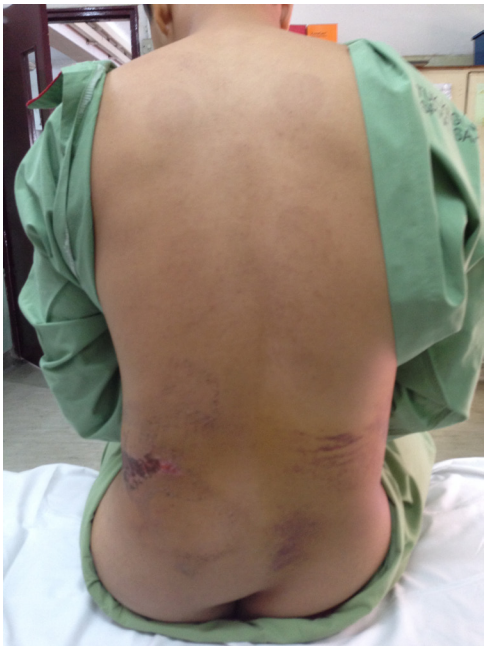

Figure 1: Swelling over left lower lumbar region

Figure 2: Percutaneous aspiration of Morel-Lavallee lesion using cannula.

(Figure 2). A pigtail catheter was inserted under ultrasound guidance (Figure 3). Daily output chart of the drain was documented. Patient was discharged with the drain in situ and was reviewed on day 22 post-trauma in trauma clinic. A repeat ultrasound showed residual hypoechoic collection between the subcutaneous tissue and intramuscular layer of mid sacral region tracking towards left lateral lumbar region,

Figure 3: Pigtail catheter insertion under ultrasound guidance to drain hematoma

measuring 1.6 cm x 15 cm x 14 cm. The pigtail catheter was blocked and was not draining for several days. The remaining 160 ml liquefied hematoma was aspirated and the drain removed. In total, 2.05l of liquefied hematoma was drained.

DISCUSSION

Morel-Lavallee lesions (MLL), or closed degloving soft tissue injuries, are often under-reported and under-recognized by clinicians. Severe MLL can sometimes cause significant blood loss and hemodynamic instability (Mao et al. 2015). It is one of the unusual and unexpected causes of hypotensive trauma patient. This case study describes a patient who has signs of class I haemorrhagic shock evident by the slightly elevated

heart rate from the initial vital signs. In class I haemorrhagic shock, up to 15% of blood volume or 750ml of blood is lost. With the significant drop of hemoglobin level and on-going blood loss, patient condition may deteriorate if early diagnosis and intervention are not made early. The following discussion focuses on mode of diagnosis and treatment of MLL.

Diagnosis of MLL can be challenging and often delayed. The diagnosis of MLL was initially missed in one-third of the cases (Hudson et al. 1992). This is because patients may present with superficial skin bruising which can mask the severity of underlying soft tissue injury. Usually the diagnosis is made based on clinical examination of fluctuant area combined with findings of appropriate imaging tools. Imaging modalities include ultrasound, computed tomography (CT) and magnetic resonance imaging (MRI).

Ultrasound is the first line diagnostic tool used due to its low operating cost and wide availability. Sonographic appearance of MLL can be varied, hence leading to difficulty in diagnosis. Acute MLL tend to be heterogeneous and lobular in shape with irregular margins. As the lesions aged, they became more homogenous and flat or fusiform in shape with well-defined margin. All MLL were hypoechoic or anechoic, compressible, and located between deep fat and overlying fascia (Neal et al. 2008).

MRI is the preferred imaging modalities of choice in the evaluation of MLL due to its better detailed images. The lesions are often homogenously hypointense on T1W sequences and hyperintense on T2W sequences. However, the signal intensities on T1W and T2W images vary depending on age of haematoma (Nair et al. 2014). MRI is more costly and not widely available. Thus, MRI was not performed on this patient due to limited resources.

Various methods have been proposed for treating MLL. Generally, it can be divided into non-operative and operative methods. Non-operative methods include rest, compression, physiotherapy and local aspiration. Surgical methods include wound debridement with open or percutaneous drainage, suction drainage and skin grafting. Currently, there is no consensus or guideline on management on MLL due to lack of evidence from good quality randomized controlled trial. However, literature described good results from operative approach.

In 2004, a case series of MLL by Harma et al. (2004) described a conservative approach treat closed degloving injuries complicated with fracture using elastic bandages or corset. Mean healing time was six weeks. They postulated that the well response to conservative treatment may be explained by absence of open wound or necrosis over skin lesion.

In the presence of open wound or fractures which need surgical reduction, most surgeons opted for surgical treatment for MLL. In a study by Tseng and Tornetta (2006) most of the cases in the study had surgical debridement and drainage in the same setting for associated pelvic and acetabular fracture. Surgical intervention appears to be safe and

effective. Focusing on MLL of pelvic region, dead space closure technique had better outcome (Shen et al. 2013).

In a systematic review, open or percutaneous debridement of MLL could be performed in the same setting for associated fracture if indicated. Otherwise, non-operative treatment could be applied to small soft tissue lesions that have intact overlying skin (Li et al. 2014).

In 2014 physicians in Mayo Clinic published a paper highlighting the need of establishing practice management guideline on this issue. In their retrospective study, they observed that percutaneous drainage had higher rates of recurrence, especially aspiration of more than 50 ml of fluids. Hence they recommended operative interventions using wound debridement and drainage with vacuum-assisted closure, skin graft if indicated for patient who had percutaneous aspiration of more than 50 ml of fluid (Nickerson et al. 2014).

CONCLUSION

Morel-Lavallee lesion is an uncommon soft tissue injury. The diagnosis is frequently missed or delayed following trauma. Therefore, clinicians need to have a high index of suspicion of MLL. Radiological imaging is helpful and definitive treatment may benefit from establishment of a clinical guideline.

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