



"The Lodox full-body scanner is a useful tool when evaluating the many injuries of the MVA trauma patient."

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A case study from the Trauma and Emergency Unit of the Inselspital, Bern, Switzerland; one of Switzerland's largest trauma units.

INTRODUCTION

An obese person is defined by the World Health Organization (WHO) as someone who has a Body Mass Index (BMI) greater than 30 kg/m^2 ¹. Obesity is a growing epidemic in the USA, and worldwide, with latest figures suggesting that 33.8% of US adults are obese². These patients fall into the group defined as 'Bariatric Patients', requiring special measures and equipment to treat them effectively in a hospital setting. The difficulty is diagnosing and treating bariatric patients accurately has been previously reported, and the unique effect this has in the context of emergency medicine has also been discussed^{3,4}. This study reports on the treatment of an obese patient at the Emergency Unit (EMU) of the Inselspital, Bern, Switzerland

CASE PRESENTATION

This 55 year old, female patient, with a BMI of 38, was transported to the EMU by ambulance following a motor vehicle accident (MVA) in which she was hit by a car while crossing the street. The ABCDE assessment was done as part of the primary trauma survey. The patient was vomiting but airways were clear. Breathing and ventilation was normal. Circulation was normal with a blood pressure of 110/60 and pulse of 90 bpm. Neurologic evaluation revealed a Glasgow Coma Score of 8 indicating a severe head injury. Physical examination of the patient revealed a tender abdomen, bruises over the pelvis, bruising and superficial lacerations distally on the right leg, with the right leg also shortened.

A Lodox Full-body X-ray scan of the antero-posterior (AP) and lateral aspects was performed, with a total examination time of approximately 5 minutes. This was followed by a full-body computed tomography (CT) scan taking approximately 10 minutes. No further X-rays were necessary, and the total time for diagnosis was 15 minutes.

DIAGNOSIS

The patient was diagnosed with traumatic brain injury from the results of the CT scan. The Lodox full-body image revealed a pelvic fracture, fracture of the head of the neck of the femur and a proximal tib-fib midshaft fracture, all of the right leg. A tibial plateau fracture of the left leg was also shown. The patient was cleared of abdominal and thoracic injuries.

DISCUSSION

This case illustrates the rapidity with which a full-body X-ray image can be obtained using the Lodox full-body scanner, and how valuable this can be in making a complete diagnosis of a critical patient. This is especially true in incidents such as MVAs, where injuries can be diverse, and dispersed throughout the body, often in unexpected locations. For the obese patient, X-ray images can be unclear due to increased scattered radiation through the body and the higher chance of motion artifacts due to increased exposure time⁵. In the case of a Lodox X-ray, this problem is eliminated due to the scatter-minimising configuration of the thin beam, narrow detector and high scatter-to-primary ratio, thus allowing high quality X-rays of bariatric patients at a low radiation dose, and total body scan time of only 13 seconds. In this case, the single full-body X-ray image provided enough information to accurately identify the position and severity of all the leg fractures, including the tibial fracture of the left leg, which would otherwise not have been suspected from clinical examination nor imaged in the normal trauma X-ray protocol. Lodox imaging also allowed the patient to be rapidly cleared for further CT imaging. This was achieved at no dose penalty to the patient, who would otherwise have been subjected to the longer exposure times necessary for bariatric patients, and without delaying further diagnosis and treatment.

CONCLUSION

The Lodox full-body X-ray system is a useful tool when evaluating multiply injured MVA patients presenting to the EMU. It is also capable of obtaining high-quality X-ray images of bariatric patients, who might otherwise be difficult to fully investigate.

References

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