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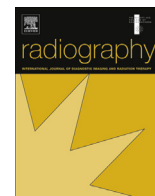
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Case report

Drop attack during chest radiography: Case report

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ABSTRACT

Chest radiography is the first line of thoracic imaging performed in patients with thoracic diseases. It is probably the most frequently performed type of X-ray examination. It is recommended to be performed in the full upright position except where the patient's condition will not permit. This is because the erect technique allows full expansion of the lungs, prevents engorgement of pulmonary vessels and also helps in fluid level evaluation. However, little is reported on the negative effects associated with erect radiography. Herein, we present a case of drop attack during erect chest radiography.

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Introduction

Chest radiograph is an invaluable diagnostic tool used to diagnose many conditions involving the chest.¹ In fact, chest radiography is probably the most frequently performed type of X-ray examination.² In the United States of America alone it is estimated that 68 million chest radiographs are performed each year.³

Although chest radiograph could be produced in supine and semi-recumbent projections, it is recommended to be performed in the full upright position except where the patient's condition(s) will not permit.⁴ This is because upright position prevents engorgement of pulmonary vessels, it allows full expansion of the lungs and helps to visualize possible air and fluid levels in the chest and pneumoperitoneum in the abdomen.^{1,2}

The decision as to whether a patient is to sit or stand for an upright chest radiograph depends on several factors amidst the patient's medical conditions and ability.⁵ Often good patient's medical conditions and the patient's comments on his/her ability to stand upon interrogation, guide the radiographer on which technique to use.^{1,4} Nevertheless, there are grey areas where despite good medical conditions, the patient's willingness does not correlate with the body's ability to tolerate the upright projection. Drop attack (a sudden spontaneous fall), which is between 1 and 10% prevalent, is one of the conditions that could topple a patient.⁶

However, there is paucity of such incidences in chest radiography. This paper presents a case report on this topic.

Case

A 22-year-old man walked into the radiology department with a chest request form. The clinical history read: "routine check up". The patient had walked to the X-ray unit from the consulting room. Before his arrival, all his vital signs were checked and were all within normal. The patient had no medical history of seizures, was non-alcoholic and had no known medical condition. After explanation of the procedure, the patient indicated his ability to stand. Patient changed into gown and without any help stood up and was positioned. The breathing rehearsals were without any problem. The radiographer then went to the control area to initiate an exposure but to his surprise, he saw the patient falling backwards off the erect bucky stand.

The radiographer quickly rushed to hold the patient from smashing his head against the end of the table bucky. Emergency alert brought in a physician who diagnosed the condition as drop attack. The procedure was later undertaken in sitting position.

Discussion

Fall-off (drop-attack) from erect bucky during erect chest radiography is sparse in literature but there is tendency of such accidents occurring. Identification of a patient who can/cannot stand for chest radiographs, on the bases of the patient's comments on

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his/her ability cannot always be successful, despite good patient's medical state or history.

It is known that patients under drowsy drugs, low sugar levels, weak, hormonal imbalance, imbalance disorders, unknown factors and patients in pains are at high risk of fall-offs/drop attacks.^{6,7} According to Meissner et al.,⁸ in most instances (64%), the cause of the drop attack is never definitively established but about 12% are due to the heart (a variant of syncope), 8% due to poor circulation to the brain, 8% due to problems with both the heart and brain, 7% due to seizures, 5% due to the inner ear otolithic crisis of Tumarkin, and 1%, due to psychological problems. A small number of drop attacks may also be due to superior canal dehiscence syndrome.⁹

However, the question is does the clinical histories that accompany requisition forms always give enough information to help radiographers evaluate patients at high risk of drop attack?

In the case presented, the patient had no drop attack history and did not show any possible signs of drop attack. Subsequent investigations such as electroencephalogram, audiogram and electronystagmography, ambulatory event monitoring, vestibular evoked myogenic potential and magnetic resonance imaging classed his attack under unknown cause. Therefore radiographers should be aware that such drop attacks can occur in any patient and careful attention should be paid to patients during erect examinations.² Evaluating and identifying at-risk drop attack patients with the available patient data, watching patients during radiographic exposure, being alert and working very fast during erect chest examinations need to be re-emphasized.

It is also imperative that the examination environments be risk free so that in cases of drop attack, patients are not badly injured. For instance, the table bucky would have to be positioned far away from the erect bucky stand to do away with the possibility of such victims smashing their heads against the proximal end of the table bucky.

Conclusion

Fall-off (drop attack) from erect bucky during erect chest radiography is possible. Radiographers therefore should be aware of such conditions. Evaluating and identifying at-risk drop attack patients with the available patient data, watching patients during radiographic exposure, being alert and working very fast during erect chest examinations need to be re-emphasized.

Conflict of interest statement

None declared.

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