Case Report

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Bilateral posterior fracture dislocation of shoulder with multiple vertebral fractures as a presentation of intracranial lesion: a report with review

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ABSTRACT

Bilateral posterior fracture dislocation of shoulder is a rare injury. Most are associated with convulsions. Intracranial lesion presenting as musculoskeletal injuries secondary to convulsions is extremely rare with only nine cases reported in the international English literature. We present a case of bilateral posterior fracture dislocation of shoulder with multiple level spine fractures in a patient with intracranial lesion. This type of skeletal injury has never been reported before in the intracranial lesions.

KEY WORDS: Seizures, Craniopharyngioma, Burst fracture, Hemiarthoplasty, Shoulder dislocation

INTRODUCTION

Posterior shoulder dislocations are rare constituting 1.7 % to 4.3 % of shoulder dislocations. [1] Posterior fracture dislocations are much more uncommon. Bilateral posterior shoulder dislocations with or without fracture do occur but very rarely and are considered path gnomic feature of convulsions. [2, 3] Epileptic seizures, hypoglycaemic seizures, syncope attacks, electroconvulsive therapy, electric shock, severe trauma are known cause of bilateral posterior shoulder dislocations. [3,4, 5] The first case of bilateral shoulder dislocation was described by Mynter H in 1907 in a patient of camphor overdose. [6] Spine is also a very common site of injury during seizure activity. [7, 8] We present a case of bilateral posterior fracture dislocation of shoulder with multiple level spine fractures in a case of craniopharyngioma and also review the international English literature for intracranial lesions presenting as musculoskeletal injuries.

CASE REPORT

A 52 year old male was brought to Emergency Department by his family members with history of convulsions that lasted for about five minutes, while he was lying down on floor reclining backwards. The patient himself could not recall the episode but complained of headache, severe pain in both shoulders and lower back and inability to move his upper limbs. There was no history of any febrile illness, trauma or any other medical problem. There was no history of similar episodes in the past. Family history was insignificant. General physical examination of the patient was normal with regular bounding pulse of 90 beats per minute and blood pressure of 130/ 74 millimetres of mercury. Local examination revealed swelling of both shoulders with a symmetrical contour. Diffuse tenderness was present on both sides. Movements at both shoulder joints were very painful and grossly restricted. There was no distal neurovascular deficit in upper limbs. Examination of spine revealed spasm of the paravertebral muscles with diffuse tenderness from eighth dorsal vertebral level to lumbosacral junction. Neurological examination did not reveal any motor or sensory deficit. Deep tendon reflexes were normal and bilaterally symmetrical. There was no bowel or bladder involvement. A random blood sugar level was 106 mg/dL. Electrocardiograph of the patient did not show any abnormality. Radiographs of shoulders, whole spine and pelvis with both hip joints revealed bilateral Neer's four part posterior fracture dislocation of the shoulder with burst fracture of tenth dorsal and third lumbar vertebra (Figure 1). MRI of the dorso-lumbar spine in addition revealed compression fracture of inferior end plate of first lumbar vertebra and thecal sac indentation at third lumbar vertebra (Figure 2). There was no compression of neural elements at any level. The patient was planned for surgical stabilization of the spine fracture and hemiarthoplasty of both shoulders in a staged manner. Oral phenytoin was started and CT and MRI

scan of the brain ordered by the consulting neurologist. CT scan of the brain revealed expansion of sella with a solid cystic lesion having a small sellar and large suprasellar component measuring 6×3.5×3.5 cm, and causing mild lateral deviation of both internal carotid arteries, however, flow void of both the arteries was maintained. Optic chiasma could be separately visualized. Suprasellar component extended up to anterior surface of corpus callosum and bulging into floor of lateral ventricles distorting them. Mild midline shift to left was evident. On T2 MRI images, solid component was uniformly enhancing and cystic component had fluid – fluid levels with mixed intensities of the components. Cysts had peripheral enhancement (Figure 3). Neurosurgical consultation was sought and excision of the lesion was planned by the neurosurgical team. Patient refused any type of surgical intervention and requested for discharge. Patient was discharged on oral phenytoin after five days.

Ten months later patient again presented to the Emergency Department with history of convulsions. There was history of management of old fracture dislocation of shoulders by a local bone setter. On examination patient was disoriented. Repeat radiographs of shoulder had new bone formation on right side; humeral head could not be seen on radiograph on either side (Figure 4). The spinal fractures had healed (Figure 5). The patient was admitted on neurosurgical side. There was a fresh wave of convulsions in the hospital and patient expired due to cardiopulmonary arrest.

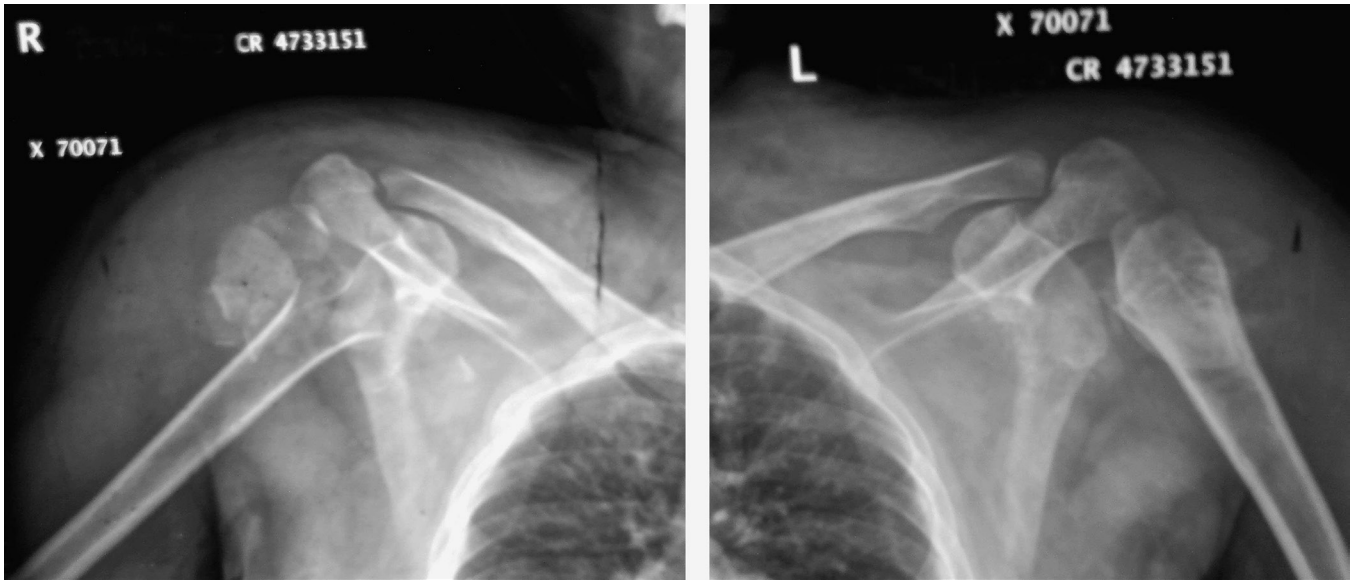

Figure 1. Antero-posterior radiograph of both shoulders having bilateral shoulder posterior fracture dislocation.

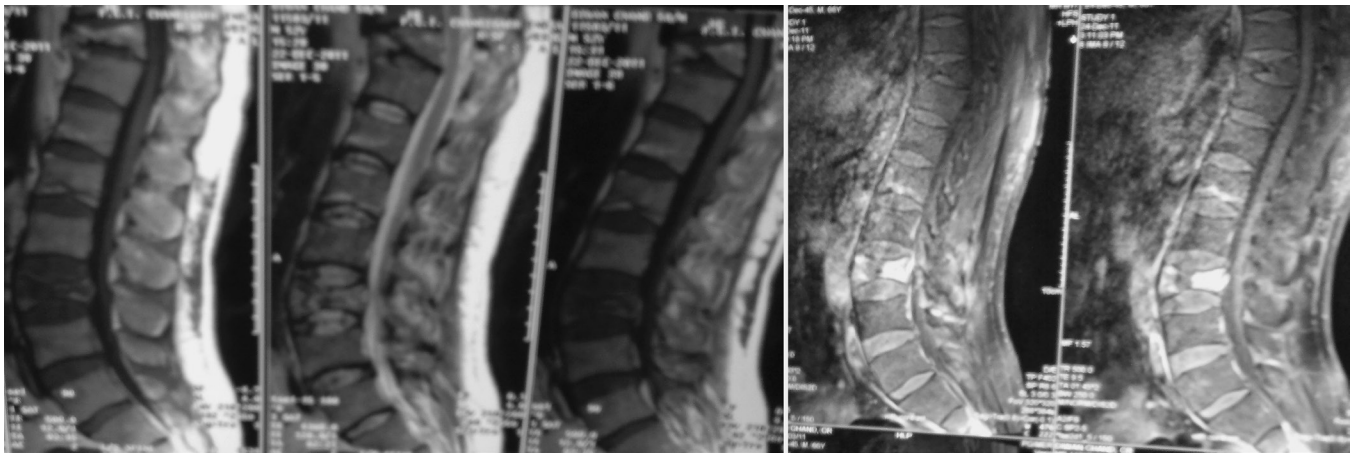

Figure 2. MRI of the spine (saggital section) showing burst fracture of D-10, L-3 vertebrae and compression of inferior end plate of L-1 vertebra.

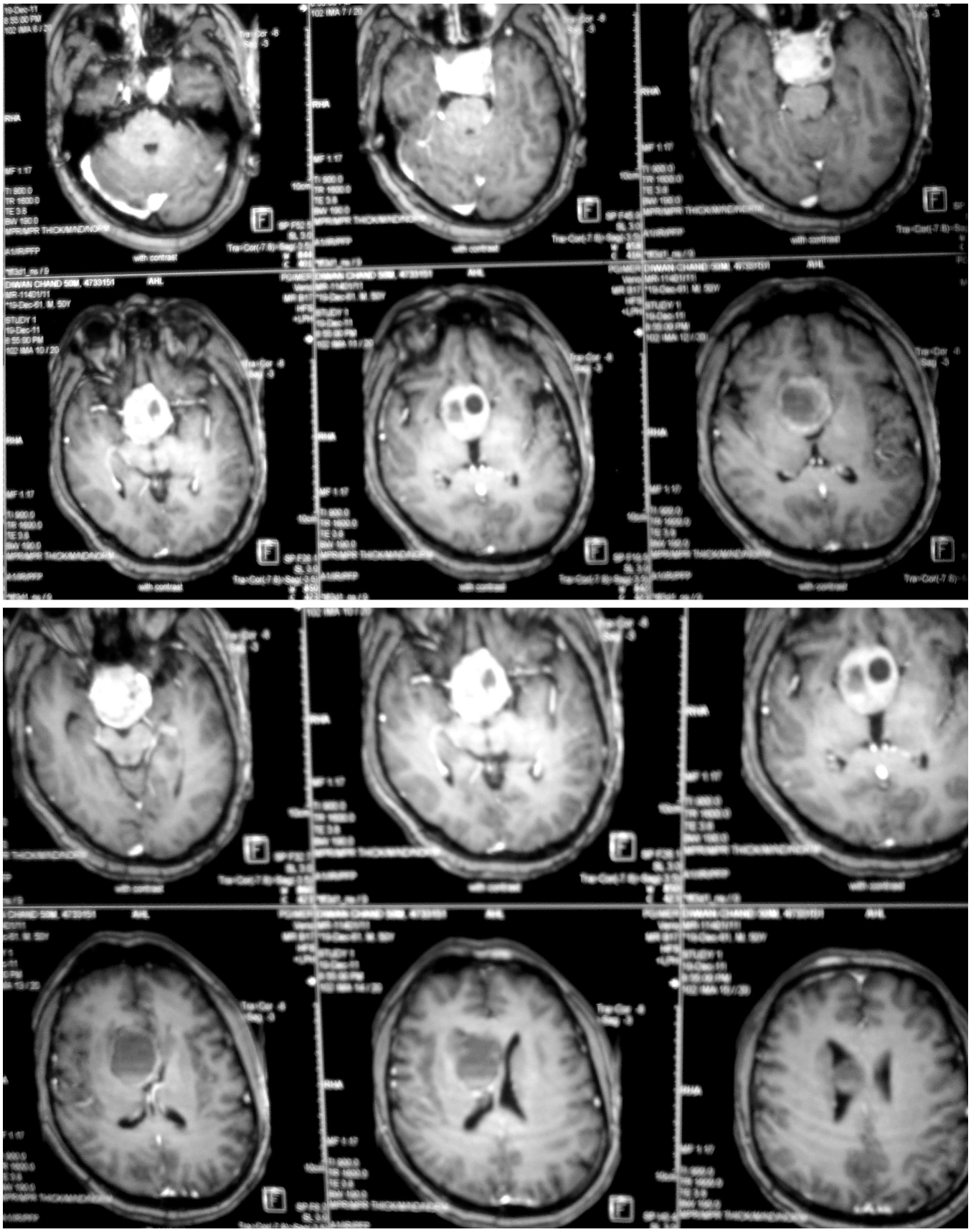

Figure 3. MRI of brain showing intracranial mass in sellar and suprasellar region.

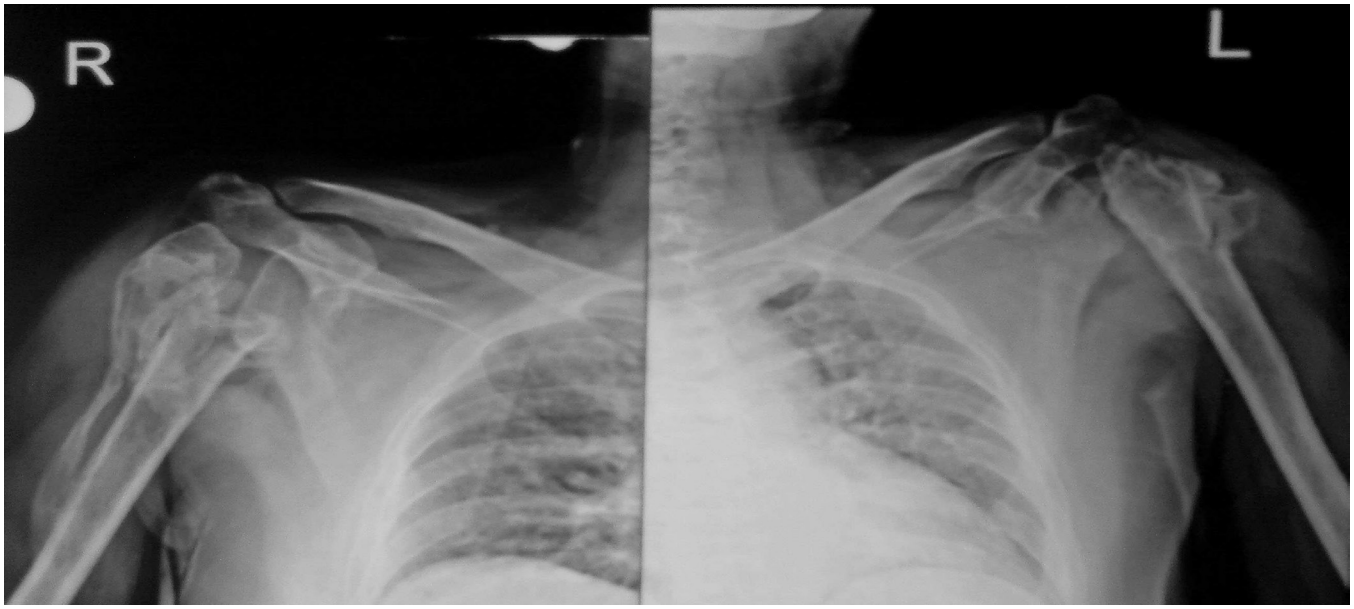

Figure 4. Radiographs of both shoulders after ten months of trauma.

Figure 5. Lateral radiograph of dorsolumbar spine with healed old fractures.

DISCUSSION

Patients with epilepsy are prone to musculoskeletal injuries. About 3 % patients with seizures have injuries directly due to convulsion or indirectly due to fall resulting from seizure. [9] Shoulder dislocation is the most common type of dislocation associated with epilepsy. [10] Other injuries include compression and burst fractures of spine, dislocations of hip, acetabular fractures, fractures of head and neck of femur and dislocation with or without fracture of temporomandibular joints. [7, 11, 12, 13, 14, 15] Fractures of spine are most commonly compression type. Very few cases of seizure induced burst fractures of vertebrae have been reported in the literature. The mechanism of vertebral fractures is forceful contraction of abdominal wall muscles during a seizure episode causing axial loading of vertebral bodies with flexion compression forces. [16] Bilateral posterior fracture dislocation of shoulder is very rare and when present is considered path gnomic of seizures. [2, 3] Epilepsy, hypoglycaemia, electric shock, electroconvulsive therapy is a well known aetiology. [3, 4, 17] The mechanism of posterior fracture dislocation of shoulder in seizures was described by Shaw in 1971. [18] Intracranial lesions can present as convulsions and musculoskeletal injuries. After review of international literature only nine cases of intracranial lesions had presented with convulsions and musculoskeletal injuries. Bilateral fracture dislocation of shoulder has been reported in only five cases with intracranial lesions. Three cases out of these had synchronous bilateral posterior fracture dislocation, two had sequential bilateral posterior fracture dislocation and one had synchronous combined anterior and posterior fracture dislocation (Table 1). Shin TS et al (2007) reported a case of unilateral shoulder dislocation and two levels burst fracture of vertebra in a patient of astrocytoma of frontal lobe. [16] Our case represents the first one with bilateral posterior fracture dislocation of shoulder with multiple level vertebral fractures. Craniopharyngioma has never been reported so far as aetiology for musculoskeletal injuries.

Table 1. Published cases of intracranial lesions presenting as musculoskeletal injuries

S. No	Author (year)	Age (years)/ sex	Intracranial lesion	Shoulder trauma	Other associated injuries	Remarks
1.	Din KM (1983)[19]	36/ M	Angiomatous malformation parietal lobe	Bilateral four part posterior fracture dislocation	-	Synchronous injury
2.	Elloitt DS (1990)[20]	50/ M	Macrocytic meningioma frontal lobe	Unilateral two part posterior fracture dislocation	-	-
3.	Kilicoglu O (2001)[21]	-	-	Bilateral posterior fracture dislocation	-	Synchronous injury
4.	Rupprecht TA (2001)[22]	54/ M	Cerebral astrocytoma	Unstable fracture humerus and scapula	Double thoracic burst fracture	Sequential injury
5.	Tsionos I (2004)[4]	67/ M	Astrocytoma temporal lobe	Combined anterior and posterior dislocation	-	Synchronous injury but initially missed
6.	Rhee P (2005)[23]	62/ M	Oligodendroglioma frontal region	Bilateral posterior fracture dislocation	-	Sequential injury
7.	Shin TS (2007)[16]	29/ M	Astrocytoma frontal lobe	Unilateral dislocation	L2, L3 burst fracture	Synchronous injury
8.	Shin TS (2007)[16]	34/ F	Meningioma frontal lobe	-	L2 burst fracture	-
9.	Sciberras NC (2013)[24]	57/M	Oligodendroglioma with thalamic metastasis	Bilateral posterior dislocation with reverse Hill-sachs lesion	-	Sequential injury
10	Ali N (present study)	52/ M	Craniopharyngioma	Bilateral four part posterior fracture dislocation	D 10, L3 burst and L1 compression fracture	Synchronous injury

M: Male; F: Female; D: Dorsal; L: Lumbar

Hence we conclude intracranial lesions presenting as musculoskeletal injuries are extremely rare. This represents the first case of intracranial mass that presented with bilateral posterior fracture dislocation of shoulder and spine fractures. Patients with convulsions with or without intracranial lesion should always be screened clinically and with radiographs of the shoulders, whole spine and pelvis to rule out any musculoskeletal injury.

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REFERENCES

1. McLaughlin, H. L. Posterior dislocation of the shoulder. Journal of Bone and Joint Surgery 1952;34-A: 584-590.
2. Rezazadeh S, VosoughiAR. Closed reduction of bilateral posterior shoulder dislocation with medium impression defect of the humeral head: a case report and review of its treatment. Case rep Med 2011;2011:124581.
3. Gosens T, Poels PJ, Rondhuis JJ. Posterior dislocation fractures of the shoulder in seizure disorders – two case reports and review of literature. Seizure 2000;9(6):446-8.
4. Tsionos I, Karahalios T, Zibis AH, Malizos KN. Combined anterior and posterior shoulder dislocation as a manifestation of a brain tumour. Acta Ortho Belg 2004;70(6):612-5.
5. Dunlop CC. Bilateral anterior shoulder dislocation- -a case report and review of the literature. Acta Orthop Belg 2002;68(2):168-70.
6. Mynter H. Subacromial dislocation from muscular spasm. Ann Surg 1902;36:117-9.
7. Kelly JP. Fractures complicating electroconvulsive therapy and chronic epilepsy. J Bone Joint Surg Br 1954;36B(1):70-9.
8. Vasconcelos D. Compression fractures of the vertebrae during major epileptic seizures. Epilepsia 1973;14:323-8.
9. Souverein PC, Webb DJ, Petri H, Weil J, Van Staa TP, Egberts T. Incidence of fractures among epilepsy patients: a population-based retrospective cohort study in the General Practice Research Database. Epilepsia 2005;46(2):304-10.
10. Sadhra K. Unusual dislocations associated with epileptic fits. Br Med J 1984;288(6418):681-2.
11. Meena UK, Meena DS, Behera P, Meel OS. Bilateral central fracture dislocation in a young patient due to seizure activity: a case report and review of the literature. Chin J Traumatol 2014;17(6):364-6.
12. Mehlhorn AT, Strohm PC, Hausschildt O, Schmal H, Sudkamp NP. Seizure-induced muscle force can caused lumar spine fracture. Acta Chir Orthop Traumatol Cech 2007;74(3):202-5.
13. Nonato ER, Borges MA. Oral and maxillofacial trauma in patients with epilepsy: prospective study based on an outpatient population. Arq Neurospiquiatr 2011;69(3):491-5.
14. Ghayem Hasankhani E, Omidi-Kashani F. Multiple lumbar vertebral fractures following a single idiopathic seizure in an otherwise healthy patient; a case report. Med J Islam Repub Iran 2013;27(4):233-5.
15. McGlone R, Gosnold JK. Posterior dislocation of shoulder and bilateral hip fractures caused by epileptic seizure. Arch Emerg Med 1987;4(2):115-6.
16. Shin TS, Kim HW, Park KS, Kim JM, Jung CK. Burst fractures of the lumbar spine due to seizure. Kor J Spine 2007;4(2):81-3.
17. Ach K, Slim I, Ajmi ST, Chaieb MC, Beiziq AM, Chaieb L. Non-traumatic fractures following seizures: two case reports. Cases J 2010;3:30.
18. Shaw JL. Bilateral posterior fracture-dislocation of the shoulder and other trauma caused by convulsive seizures. J Bone Joint Surg Am 1971;53(7):1437-40.
19. Din KM, Meggitt BF. Bilateral four-part fractures with posterior dislocation of the shoulder. A case report. J Bone Joint Surg Br 1983;65(2):176-8.
20. Elliott DS. Brain tumour presenting as a dislocated shoulder. JBone Joint Surg Br 1990;72(5):925.
21. Kilicoglu O, Demirhan M, Yavuzer Y, Alturfan A. Bilateral posterior fracture-dislocation of the shoulder revealing unsuspected brain tumor: case presentation. J Shoulder Elbow Surg 2001;10(1):95-6.
22. Rupprecht TA, Schellinger PD, Mohr A, Meinck HM. Nocturnal spinal fracture—first manifestation of epilepsy. Unfallchirurg 2001;104(2):179-80.
23. Rhee P, Main C. Bilateral posterior fracture-dislocation of the shoulder as a presentation of an intracranial tumor. Internet J orthop Surg 2005;3(1).
24. Sciberras NC, David-West KS, Tait GR. Bilateral locked posterior shoulder dislocation after an undiagnosed brain tumor. Curr Orthop Pract 2013;24(2):214-16.

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