

**Introduction:** Pelvic apophysis avulsion fractures in adolescent athletes are rare injuries and these fractures occur on the growth cartilage on the apophysis plates.

**Case presentation:** A 17-year-old male patient admitted to ED suffering from sharp pain in the right hip and difficulty in walking after kicking ball severely during playing football. On physical examination, there was tenderness in the right thigh consistent with spina iliaca anterior superior (SIAS). Hip movements were within normal range except pain during movement. Neurovascular examination was within normal range. On Pelvic X-ray revealed a crescent shaped avulsion fracture of the right SIAS. The patient was treated conservatively and discharged with recommendations.

**Discussion and conclusion:** The epiphyses and the apophyses are the weakest part of all the skeletal system. In these regions, avulsion fractures may occur with sudden and severe spasm of the muscles. Avulsion fractures of SIAS are mostly treated conservatively unless there is more than 2 cm fragment separated and non-union case in which case surgery is recommended. This type of injuries can be easily overlooked or misdiagnosed due to history of trauma free. It may also effects

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### **Bullous myringitis: A cause of hearing loss**

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**Introduction:** Bullous myringitis is defined by the presence of blisters on the tympanic membrane which has generally a severe otalgia as a first symptom of presentation. This clinical picture sometimes may be accompanied by sensori-neural hearing loss. In this study, we aimed to share visual content of a patient with Bullous myringitis admitted to the emergency department.

**Case presentation:** A 24-year-old male patient complained of a right severe pain in the right ear and hearing loss was admitted to the emergency department. On physical examination the right tympanic membrane was oedematous, hyperaemic and blisters were seen. The patient was referred to ENT department for evaluation of hearing loss. Bullous myringitis with sensori-neural hearing loss in the right ear was diagnosed. For treatment, pain control and warm compression was recommended. Antibiotic therapy has been also planned for middle ear infection. ENT follow-up were planned for the assessment of hearing loss.

**Results and discussion:** Many microorganisms, especially viruses, m.pneumoniae, chlamydia may cause Bullous myringitis. In the literature bullous myringitis cases that admitted to ED with sensori-neural hearing loss have been reported. Diagnosis is made by clinical examination. Pain control and mild compression may be sufficient for treatment. If concomitant otitis media is present, antibiotics should be added to treatment.

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### **Electrocardiographic findings of carbon monoxide intoxication; two cases**

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**Introduction:** Carbon monoxide (CO) poisoning is a life threatening emergency. Oxygen delivery to tissues is reduced and hypoxia develops. Most affected systems are the central nervous system and cardiovascular system. For the diagnosis of CO poisoning, first poisoning should be suspected and then blood carboxyhaemoglobin (COHb) levels should be measured. For cardiovascular evaluation ECG is required.

**Case 1:** A 56-year-old male patient admitted to ED with complaints of syncope, headache, dizziness and blurred vision. Patient was mentally confused and on ECG sinus tachycardia was present (Fig. 1). On blood gas analysis COHb value was measured 33.3%. Due to syncope and ECG changes hyperbaric oxygen (HBO) therapy initiated. After the treatment, COHb value was measured 4.5% and ECG showed normal sinus rhythm. Patient was discharged with recommendations.

**Case 2:** An unconscious 36-year-old female patient admitted to ED with a diagnosis of CO poisoning. ECG revealed ST depression on DII-DIII-AVF leads (Fig. 2) and elevated troponin I (0.1 ng/ml) and CK-MB (47 U/L) values were determined. On blood gas analysis, COHb value was measured 39.8%. HBO therapy initiated. After HBO therapy patient was conscious and for further follow-up patient was admitted to intensive care unit.

**Discussion and Conclusion:** Although there is no classic "carbon monoxide" ECG pattern, sinus tachycardia and ST-T depressions are the most common ECG findings. Even a small amount of exposure to CO can cause myocardial infarction, especially in patients with coronary artery disease. Patients admitting to ED with chest pain and ECG changes may be considered as a possible CO poisoning and patients with CO poisoning must be carefully evaluated for cardiovascular disease.

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### **Comparison of patient referral processes between rural and urban health facilities in Liberia**

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**Introduction:** Since the 2003 peace talks, the Liberian government has made progress in rebuilding a comprehensive national health system. However, the effective referral of patients from one health facility to another remains a challenge, especially in rural areas. The objective of this study is to compare referral care practices at rural and urban health facilities in the most populous county in Liberia.

**Methods:** A cross-sectional health referral survey was conducted at a representative sample of primary clinics, health centres and hospitals in Montserrado County, Liberia. The survey was administered via direct interview with a qualified director of each health facility by a single observer. The survey describes baseline facility data, characteristics of referrals, referral guidelines used, transport modes and communication methods. Referral processes were compared between rural and urban health facilities.

**Results:** During the 6-week study, 62 health facilities were surveyed. Most facilities were considered urban ( $n = 52, 84\%$ ). Average patient presentations to rural outpatient and inpatient health facilities during the 3-months prior to the study period was 3182.8 and 42.4, respectively, compared to 2559.0 and 866.8 at urban outpatient and inpatient facilities. The mean percent of referred patients at rural health facilities was 51.8% compared to 10.7% at urban facilities ( $p = 0.004$ ). The mean overall distance to the referred health facility ( $p = 0.025$ ), and