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CONFLITOS DE INTERESSE

Os autores declaram não ter conflitos de interesse relacionados com o presente trabalho.

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Paracetamol Induced Acute Interstitial Nephritis: A Pediatric Case Report

Nefrite Intersticial Aguda Induzida pelo Paracetamol: Um Caso Clínico Pediátrico

Keywords: Acetaminophen/adverse effects; Child; Nephritis, Interstitial/chemically induced

Palavras-chave: Acetaminofen/efeitos adversos; Criança; Nefrite Intersticial/induzida quimicamente

Dear Editor,

Acute interstitial nephritis (AIN) is characterized by the presence of inflammatory infiltrates and edema in the renal interstitium, and is usually associated with an acute deterioration in renal function (acute kidney injury – AKI).¹ AIN can have multiple causes, but it is most frequently drug-induced. Even though the list of drugs that can trigger AIN keeps growing, antimicrobial agents and non-steroidal anti-inflammatory drugs are the most common.¹

We report the case of a 14-year old girl who developed biopsy-proven AIN with a temporal association with paracetamol exposure. The patient presented two weeks after receiving daily treatment for an upper-respiratory infection with paracetamol, in therapeutic doses. The patient had low-grade fever, weight loss (approximately 7% of total body weight), and polyuria, without nocturia or other

changes in urine. No other drugs were taken. The physical examination was normal, including normal blood pressure. The patient was diagnosed with AKI (serum creatinine 3.88 mg/dL; glomerular filtration rate 23.8 mL/min/1.73 m²), mild leukocyturia (15 leukocytes/ μ L), no hematuria, non-nephrotic proteinuria, and glycosuria, with normal glycemia. Globally enlarged kidneys with a moderate diffuse increase in parenchymal echogenicity were observed in renal ultrasound. A kidney biopsy showed tubulitis and an intense interstitial inflammatory infiltrate, with numerous eosinophils and no granulomas, which was suggestive of AIN (Fig. 1). Infectious and autoimmune causes were excluded. After re-exposure to paracetamol for pain following the biopsy, the patient became febrile, began vomiting, and exhibited an urticaria-like rash. Blood tests showed eosinophilia (6% eosinophils; 770/ μ L) and worsening renal function. Paracetamol-induced AIN was suspected. Prednisolone was started (1 mg/kg/day) and complete eviction of paracetamol was recommended. Ibuprofen was suggested as an alternative if a painkiller or antipyretic was needed.

The symptoms completely resolved, and the renal function recovered completely one month after the eviction of paracetamol. Steroids were progressively tapered. The patient maintains a normal renal function seven months after the diagnosis.

Any drug can potentially induce AIN.¹ However, very few cases of AIN after therapeutic doses of paracetamol have

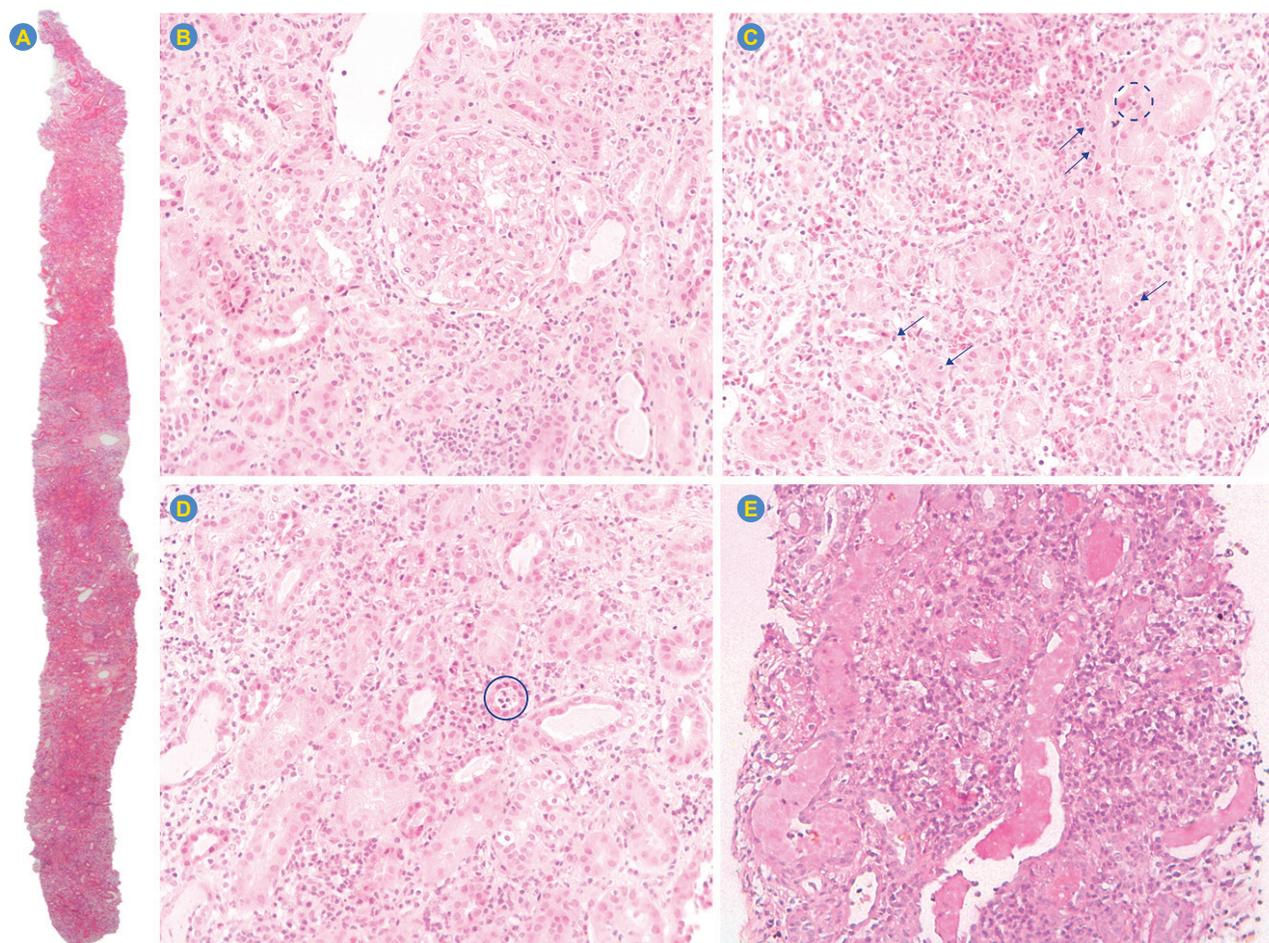


Figure 1 – Histological sections of the renal biopsy, measuring 10 mm, which include the cortex and medulla (A – H&E). About five renal glomeruli were examined and showed no morphological changes (B – H&E). The renal interstitium was expanded by a severe inflammatory infiltrate mainly composed of lymphocytes and plasma cells, along with a significant number of granulocytes, particularly numerous eosinophils (C – H&E). Degenerative tubular changes with tubulitis are observed, with occasional intraepithelial lymphocytes (C - arrows) and neutrophils (C – dashed circle). Some of the renal tubules display intratubular granulocytes (D – circle, H&E) and urinary hyaline casts (E – PAS).

been reported.² The clinical presentation is non-specific.³ Not all patients have a complete recovery of renal function even if the inciting agent is removed.^{3,4} The most important therapeutic measure is the early removal of the responsible drug. The role of corticosteroids remains controversial.⁵ In conclusion, AIN caused by paracetamol is rare. The diagnosis is challenging because of the heterogeneous clinical picture and the inexistence of reliable non-invasive diagnostic procedures. It is important to keep a high clinical suspicion and the early suspension of the causative drug is crucial for the prognosis.

AUTHOR CONTRIBUTIONS

PJM: Data acquisition and analysis, writing of the manuscript.

RMC: Data acquisition and analysis.

PCR, ARS: Critical review of the manuscript.

JES: Critical review and approval of the manuscript.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed

according to the regulations established by the Clinical Research and Ethics Committee and to the Helsinki Declaration of the World Medical Association updated in 2013.

DATA CONFIDENTIALITY

The authors declare having followed the protocols in use at their working center regarding patients' data publication.

PATIENT CONSENT

Obtained.

COMPETING INTERESTS

The authors have declared that no competing interests exist.

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High-Pressure Fluid Injection Injury: The Importance of a Prompt Diagnosis

Lesões por Injeção de Fluido a Alta Pressão: A Importância do Diagnóstico Atempado

Keywords: Amputation, Surgical; Decompression, Surgical; Hand Injuries

Palavras-chave: Amputação Cirúrgica; Descompressão Cirúrgica; Lesões da Mão

Dear Editor,

Hand and forearm injuries caused by high-pressure fluid injection are underreported and often diagnosed late.^{1,2} In certain professional activities such as construction work, there is an increased risk of these injuries, especially in the index finger of the non-dominant limb, due to the use of tools such as paint guns or air compressors.³

This article reports the case of a 57-year-old man, who presented to the emergency department with a punctiform wound on the volar surface of his left index finger, caused by a plaster gun (Fig. 1A). The incident had occurred approximately 12 hours prior to seeking medical attention, and the patient complained of pain and local swelling, but there were no apparent signs of tenosynovitis. A radiograph of the hand showed extensive infiltration of plaster throughout the subcutaneous tissues from the metacarpal to the distal interphalangeal joint of the same finger.

After identifying the apparent extent and severity of the injury, urgent surgical exploration of the wound and attempted debridement using dilution with normal saline were performed. There was complete adhesion of the plaster to the neurovascular bundle, which was inseparable, and therefore only partial removal was possible (Fig. 1B). In addition, empirical intravenous antibiotic therapy with amoxicillin and clavulanic acid was initiated during the preoperative period.

The patient had a good postoperative course, with no signs of infection or ischemia throughout the follow-up period. At eight weeks post-trauma, there was complete resolution of symptoms, and the patient was able to resume his professional activity.

When faced with a high-pressure fluid injection injury, early assessment and treatment are essential since these injuries can have devastating consequences even though their external appearance can often seem innocuous.⁴ The rates of amputation described in the literature can exceed 50%, even when injuries are treated within the first six hours.⁵ In cases where amputation is avoided, the resulting sequelae prevent more than half of individuals from returning to their professional activities. Injected substances can progress through tissues along paths of least resistance, such as neurovascular bundles, triggering inflammatory reactions that contribute to tissue irrigation compromise and eventual necrosis. In addition, the presence of a portal of entry, combined with local ischemia, promotes infection.^{1,3}

High-pressure fluid injection injuries are a surgical emergency. Prompt diagnosis is very important to avoid serious complications such as amputation. Given the severity of this condition and the associated consequences, clear and thorough communication with patients is crucial.

AUTHOR CONTRIBUTIONS

FS, MR: Conception and design of the work, data acquisition, analysis, and interpretation, drafting of the work.

MJL: Data analysis and interpretation, drafting of the work.

AS: Critical review of the manuscript.

VV: Critical review and approval of the final version of the manuscript.

PROTECTION OF HUMANS AND ANIMALS

The authors declare that the procedures were followed