

Introduction

Traumatic intracranial aneurysms (TICA) are rare in occurrence and equally rare in the literature. Less than 1% of intracranial aneurysms are caused by blunt trauma, while even fewer are caused by penetrating trauma. Penetrating trauma creates a unique type of aneurysm that does not incorporate all three vessel wall layers. Because of their rarity, the natural history and management of TICAs are not well defined in the literature. Here we present a case report of a gunshot wound to the head leading to multiple TICAs. A review of the current literature was performed with a discussion of potential TICA management.

Case Report

A 53 year old male presented to the trauma bay GCS 14 with a depressed skull fracture. Neurosurgery was consulted and head CT showed evidence of a penetrating wound with a path of skull fragments and shrapnel from his frontal bone through his cribriform plate and soft palate. There was minimal hemorrhage, but angiography showed two anterior cerebral artery pseudoaneurysms measuring 2mm and 1mm. He remained neurologically intact and on day 5 underwent lumbar drain placement and endoscopic repair of his skull base defect. That evening he experienced an episode of hypertension with systolic blood pressure over 200mmHg followed by

Methods

A Pubmed search of the literature pertaining to traumatic pseudoaneurysms and penetrating brain trauma. The literature was reviewed for case reports and management recommendations.

Results

Traumatic intracranial aneurysm formation is the most commonly described vascular injury after penetrating brain injury. Histologically, traumatic aneurysms can be described as true (incorporating intima, media, adventitia), false (incorporating one or two vessel wall layers), or mixed. False aneurysms, or pseudoaneurysms, are the most common histologic type seen after penetrating brain injury. Of the penetrating injuries, stab wounds appear to be the mechanism with the highest incidence of aneurysm formation with one series finding 14.9% of patients with intracranial stab wounds developing aneurysms versus only 4% with projectile missile injuries.

Conclusions

There is scarce published data defining management of traumatic intracranial aneurysms. With a higher mortality and morbidity rate compared to congenital aneurysms, TICAs present a need for aggressive management in the acute setting. Medical intervention includes management of blood pressure under 140mmHg systolic to prevent rupture, control of intracranial hypertension, and prevention of vasospasm. Surgical intervention involves aneurysm

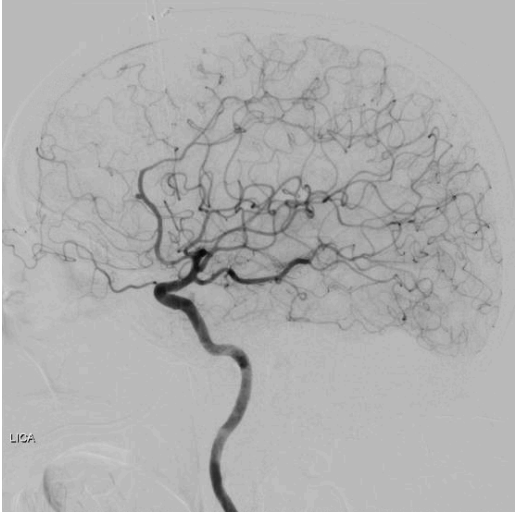
Learning Objectives

Identification of traumatic intracranial aneurysms.
Classification of traumatic intracranial aneurysms.
Treatment and management of traumatic intracranial aneurysms.

References

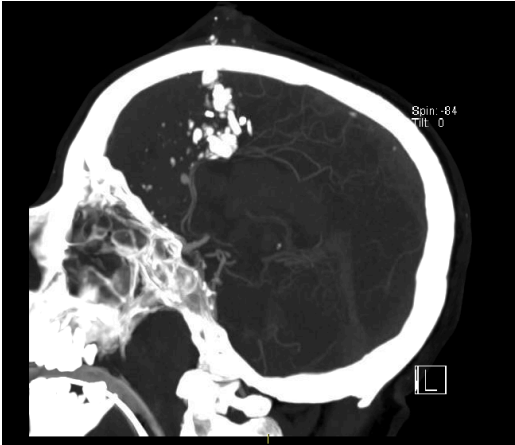
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Angiogram



Angiogram showing traumatic intracranial aneurysm following a gunshot wound to the head.

CTA



CTA showing traumatic intracranial aneurysm following a gunshot wound to the head.