

# Clearance of the Cervical Spine in Obtunded Pediatric Blunt Trauma Patients: Quality Assessment of an Existing Clearance Pathway

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## Introduction

- C-spine must be cleared without a clinical exam in obtunded pediatric trauma patients
- CT alone sufficient for adults, but MRI may add value in the pediatric population

## Aims and Objectives

To review the use of both CT and MRI for obtunded pediatric trauma patients in effort to further assess the quality of our center's current pathway and the utility of MRI

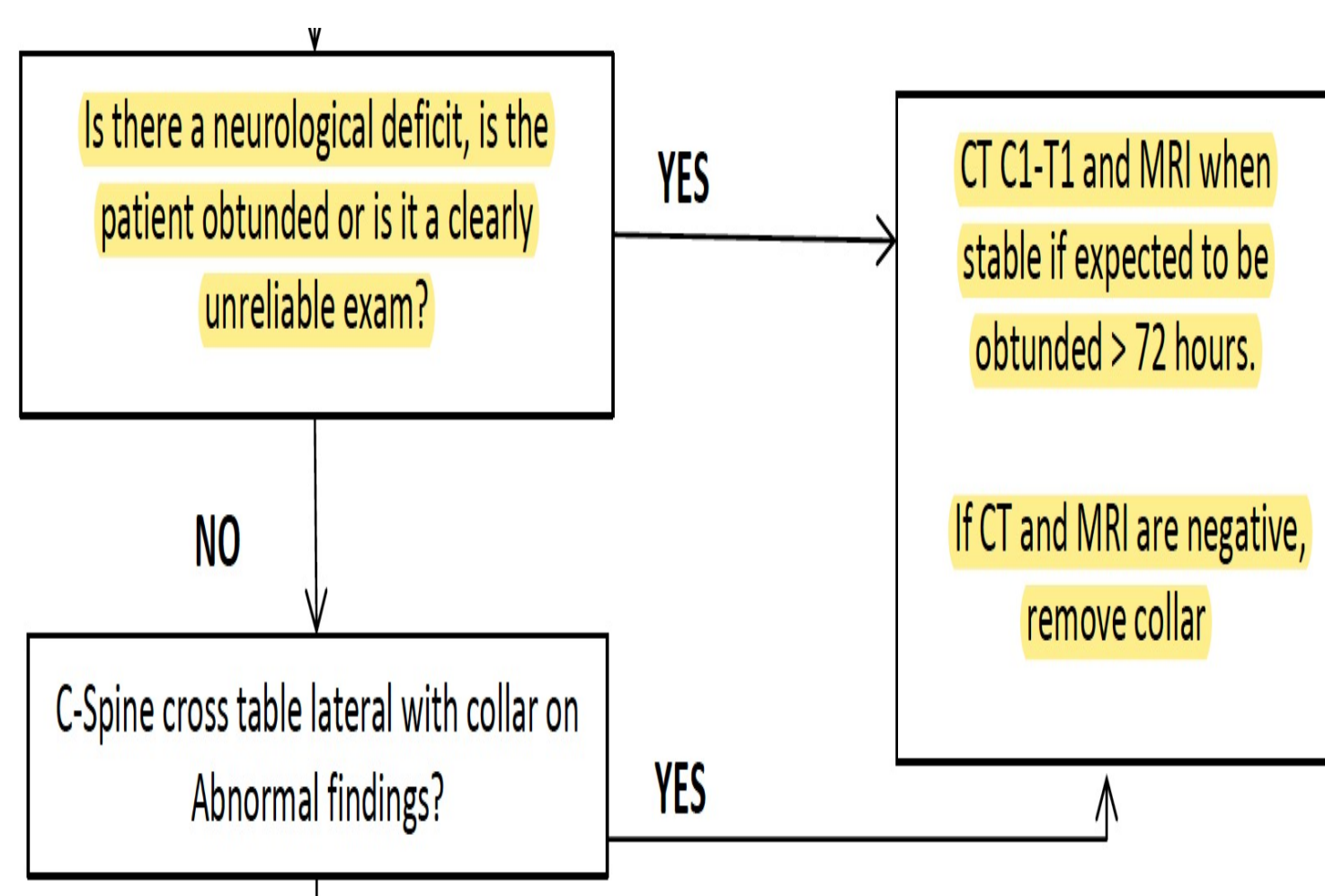


Figure 1. Existing Pathway

## Methods

- Retrospective review pediatric blunt trauma admissions with GCS  $\leq 10$  from January 2010 - December 2019
- Additional inclusion criteria patients  $\leq 18$  years old, patients with blunt traumatic injury, and patients having received a CT of the C-spine
- Descriptive statistical analysis of continuous and categorical variables was performed using GraphPad Prism

## Results

- 46 patients met inclusion criteria (Figure 2)
- Median age 13.5 years (IQR 7-16); median GCS 4 (IQR 3-7)
- 43 patients normal c-spine CT
- Of these, 16 patients received an MRI due to persistent neurologic depression
- MRI identified 3 injuries (18%) not identified on CT (Table 1)

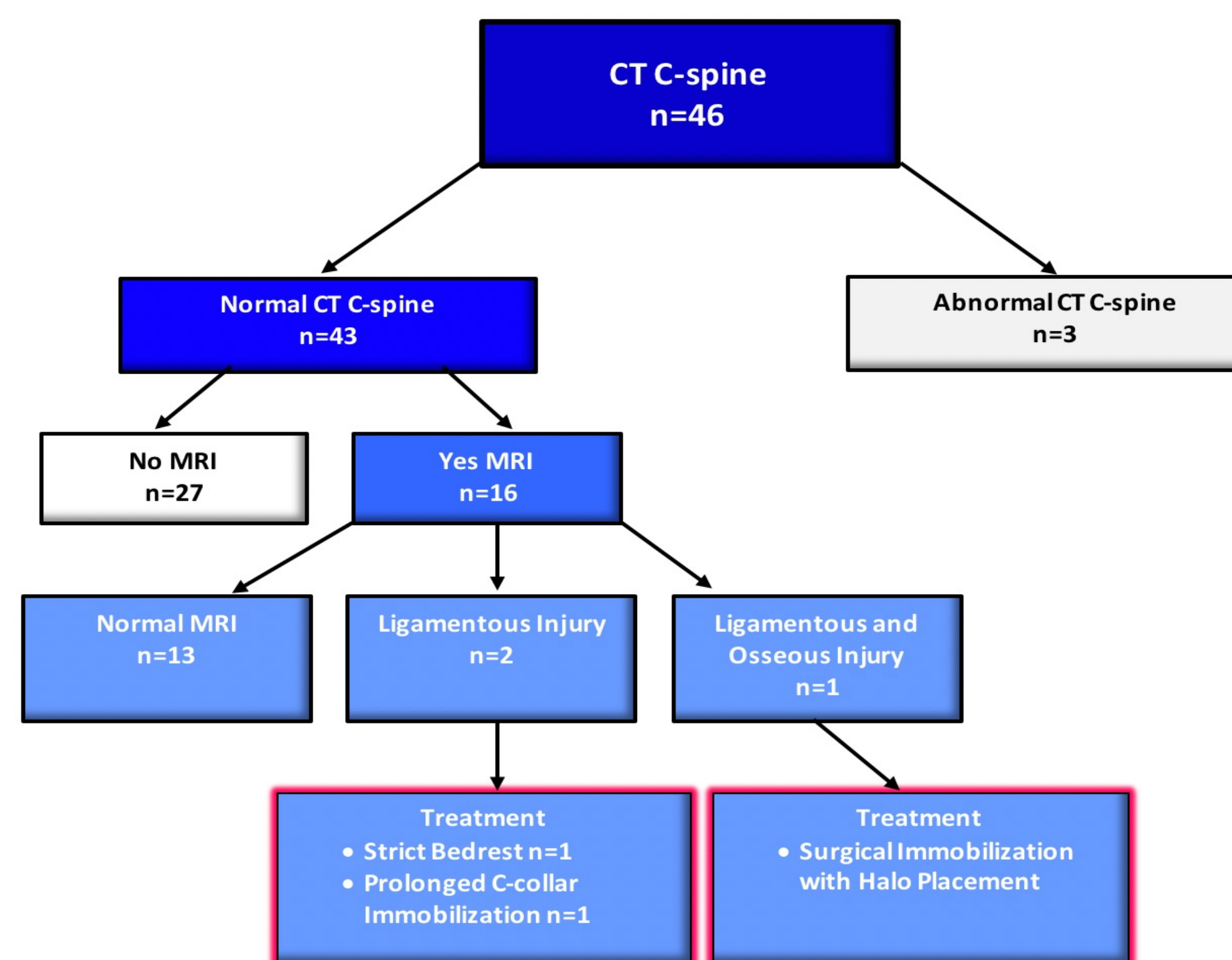


Figure 2. Patients meeting inclusion criteria.

Patient Age (yrs)	Injury	Treatment
11	Ligamentous Edema	Strict Bedrest
16	Ligamentous Injury	Prolonged C-Collar* Immobilization
2	Ligamentous and Osseous Injury	Surgical Immobilization with Halo Placement

\*C-Collar = Cervical Collar

Table 1. Injuries identified by MRI.

## Conclusions

- Contrary to recent adult literature, MRI adds value by identifying injuries needing intervention that were not seen on CT in obtunded pediatric trauma patients
- Standardized pathway that includes MRI for obtunded patients with negative CT scans should lower the chance that a potentially unstable ligamentous injury is missed in these complex patients

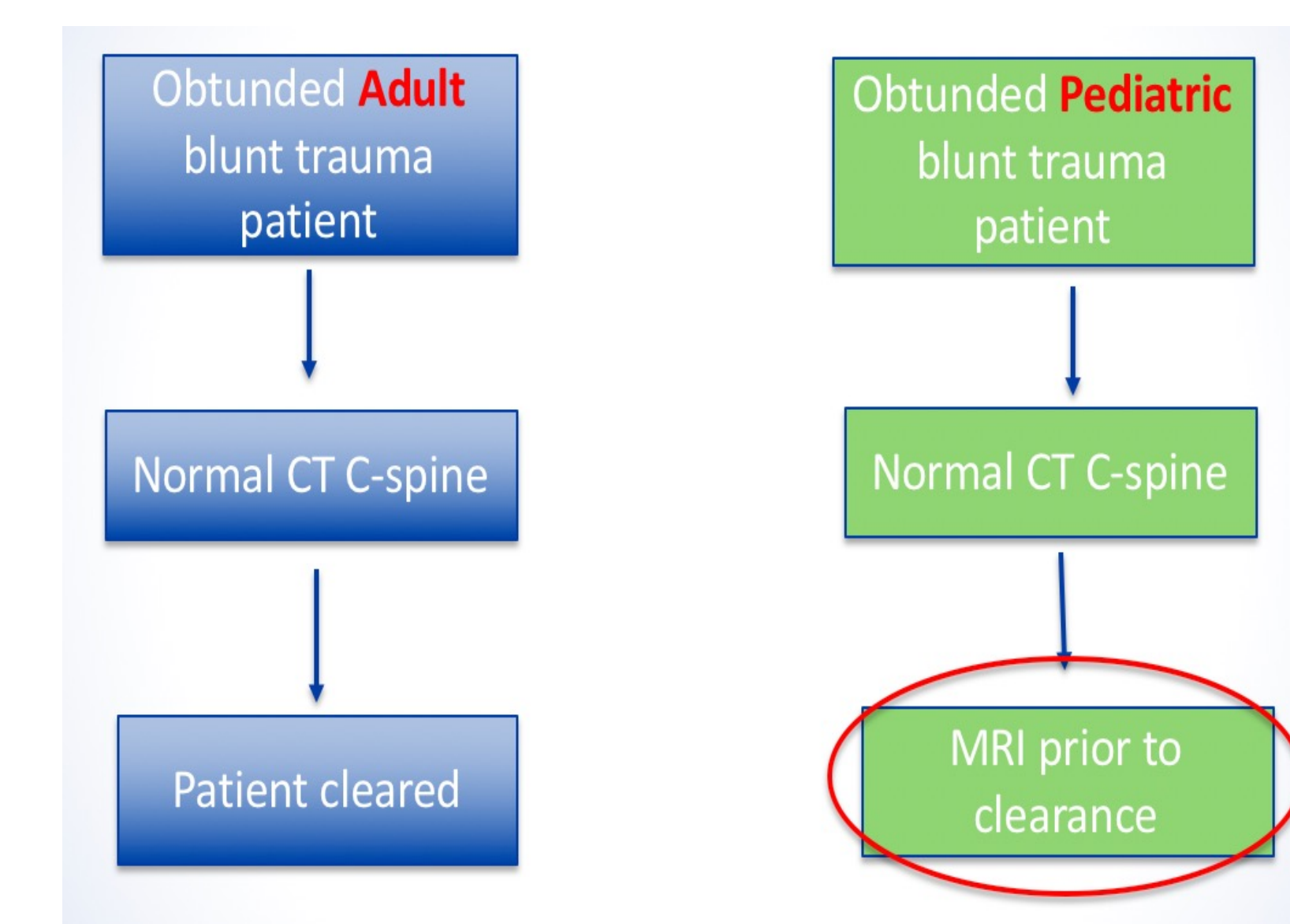


Figure 3: C-spine clearance adults vs pediatrics

