The incidence of Odontoid Fractures following trauma in a major trauma center, a retrospective study

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Background: Cervical Spine Injury is the most common vertebral injury after major trauma, 20% of all cervical fractures happen to be odontoid fractures, in young adults, odontoid fractures usually happens as a result of hight-energy trauma after motor vehicle accident (MVA). MVA in Riyadh represent 38.4% of all trauma cases, in which the head and neck are most injured body parts. This research aims to provide information about the incidence of odontoid process fracture post- MVA in Riyadh, Saudi Arabia.

Methods: The design of this study was retrospective. A single level one trauma center database (trauma registry) was used to identify odontoid fractures post-MVA. All trauma cases from 2008 to the most recent were included, a total of 17,047 patients, to identify Cervical Spine fractures and further identify odontoid fracture incidence. The patients' radiographs were reviewed retrospectively, and odontoid fractures were classified by a board-certified Spine Surgeon. A descriptive analysis was carried out to report basic data distribution. Pearson's correlation was carried out to assess association.

Results: A total number of Cervical Spine fractures were 1195 patients (6.6% of the total sample). The incidence of odontoid fractures during the entire study period from 2008 to 2018 was 42 of 480 patients with C2 cervical trauma, constituting 8.75 % C2 fractures, and 3.5% of Cervical Spine fractures. The mean age was 41.75 ± 18 years. There were three patients (on male, two females) with type I odontoid fracture, 26 (all males) with type II, and 13 (11 males, 2 females) with type III. Most patients were managed conservatively (83.33%), whereas 16.67% underwent surgical management.

Conclusion: The incidence of post-traumatic odontoid fractures is low, given the younger population of this study. This does not predict future incidence rates with continued improvement of road traffic laws and awareness in the population.

Table 1: Fractures type by age and management

Age	Number of patients	Odontoid fracture classification			Management	
		Type I	Type II	Type III	Conservative	Surgery
30 and below	20	0	15	6	17	3
Between 30 and 70	17	3	6	7	16	1
70 and above	5	0	5	0	5	0

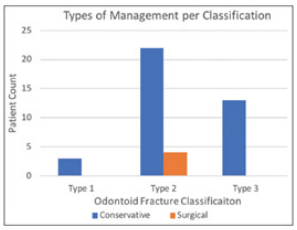

Figure 1: Most patients were managed conservatively (90.48%) with Halo vest cervical orthosis immobilization while those who were unstable (9.52%) underwent posterior fusion with screws

Figure 2: Year by year incidence showed no statistically significant trends in incidence rates

Biography

Ahad Abdullah Bugis have completed her Doctor of Medicine (MD) in the Kingdom of Saudi Arabia, Graduated from Dar Al Uloom University, College of Medicine, Riyadh, KSA. She is currently a trainee Orthopedic Surgery Resident at Al Habib Medical Group in KSA.

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