

Let's Give Our Best to the Children: The Pediatric Trauma Symposium

The last decade has seen an explosion of knowledge in all streams of orthopedic surgery, with pediatric musculoskeletal trauma being no exception. The introduction of super-specializations has further added both precision and technicalities to its content. The aim of the present symposium is to provide a balanced mix of reviews, meta-analysis, original articles, and case illustrations to the readers interested in pediatric trauma. Conditions which could pose a challenge both in terms of diagnosis and management are dealt in a way to give readers a “to do” approach.

Starting with often-quoted cautionary statement, “children are not miniature adults,” the pediatric skeleton has a host of peculiarities making it distinct from adults: presence of epiphyseal growth plates at bone ends, bone elasticity and thick periosteum, relative laxity of ligaments and joints, disproportionate body dimensions, for example, large skull, immature gait patterns, prone to falls, rapid bone healing potential, and remodeling potential.

The foremost question which arises before we begin is the magnitude of the problem. Although trauma registries are well established in high-income countries, statistics from our country remain largely undocumented. Children <15 years of age comprise about one-third of the total Indian population and up to one-fourth of hospital admissions.^{1,2} Prospective epidemiological data from a tertiary care center of North India hinted a male predominance (58.5%) and age group 6–15 years being more susceptible to trauma.³ Fall-related injuries (59%) were more common than road traffic-related accidents, a finding different from the Western literature.

It is imperative to constantly educate and re-equip ourselves with both basic and recent advances. The present *Indian Journal of Orthopaedics* issue includes an update on pediatric cervical spine trauma, tibial shaft fractures, femoral neck fractures, and perhaps, the more important open injuries in this age group.⁴⁻⁷ Conservative management still remains the cornerstone strategy to manage most of the pediatric fractures. The budding orthopedic surgeons although enveloped with newer operative techniques and a plethora of new implants must become skilled at the application of a well-molded and effective cast. It is equally important to understand the factors responsible for cast failures and rectify them. The manuscript analyzing the redisplacement of forearm fractures treated in cast closely examines these aspects and aligns us to best execution of conservative management.⁸

Urbanization is an upcoming trend and has its toll on children for both better and worse reasons. Today's youngster and adolescents are more inclined to sports and

other competitive games, thanks to infrastructural support and community awareness. Anterior cruciate ligament injuries form a major chunk of sports medicine. An aggressive rehabilitation remains the key to early return to recreational activities following operative reconstructions.⁹ Another closely linked trend is the multiply injured children in the emergency department (ED). In high-income world regions, the prevalence described is as high as 600 cases/10,000 children.¹⁰ A report from the United Kingdom registry listed 2 million children attending ED with injuries each year and over 300 with a major trauma (Injury Severity Score >15).¹¹ The exact figures from our country still remain unknown. It is essential to acquire relevant knowledge besides being systematic and structured in approach to multiply injured children.¹² A team approach has shown better outcome in such scenarios. Several implants for managing pediatric fractures are now available.¹³ One must not forget that simpler implants might work as efficiently as bulky ones for pediatric fractures, if used appropriately. Hip spica is fairly well tolerated in children and one should not be hesitant in its use, if indicated.

Injuries in children portray regional distinctiveness and are influenced by social, cultural, and religious practices. Contrary to the high-income populations where firearms are one of the foremost reasons for foreign body-inflicted musculoskeletal injuries in children, Indian children display an array of entirely different foreign bodies – dhaga/rubber band, needles, wooden twigs, glass bangles, etc.^{14,15} An awareness of the societal characteristics is thus important for the clinician, both for injury diagnosis and treatment plan.

An often-forgotten aspect in childhood trauma is the long term impact of fracture management and its influence on child's activities. It is already well known that growth-plate deformities can manifest several years later (e.g., Salter Harris Type V injuries and articular fractures). Studies with long term followup are indispensable to guide the clinician to prognosticate the patients and plan management accordingly.¹⁶

Evidence-based practices still have to go a long way in pediatric orthopedics and trauma surgery is no exception. The symposium envisages discussing some of the debated issues in addition to the commonly faced fracture situations. The exposed or buried Kirschner wires in lateral condyle humeral fractures,¹⁷ parallel or divergent configuration for wire fixation in supracondylar humeral fractures,¹⁸ or single-bone or both-bone fixation for pediatric unstable forearm fractures¹⁹ are some of the contested issues which are discussed. Several other growth-plate injury

patterns have been illustrated using carefully selected case examples.²⁰ As is evident from these research articles, dedicated research with well-thought-out and structured protocols will answer many of our queries in the future. The future lies in conscientious and judicious use of the best available evidence in conjunction with clinical expertise and giving the best to our younger generation.

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