Editorial: Pediatric Orthopedics at the Doorstep of the Pediatrician

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It would be an interesting thought that how would Rip Van Winkle, the Dutch villager who slept for twenty years before waking up, perceive the present day changes in medicine had he woken up in 2016! There would surely be no end to the surprises of Rip Van Winkle!

In fact the last decade has seen an explosion of knowledge in all spheres of Medicine and Surgery. Super specialisations have made health care delivery not only precise but highly technical as well. Having said this, too much of specialised knowledge comes with a danger of inciting mediocrity. In a developing country like India, super specialists are essential but the onus of providing health care delivery to large volumes of population still rests with the “generalist” Physician [1]. Therefore it becomes imperative to constantly educate and update this physician as he/she needs to be abreast with the current basic practices in their respective super specialist subdivisions. In recent years Pediatric Orthopedics has carved out its own space as a super specialist field with rapid advancements in diagnosis and management of children with musculoskeletal disorders. The main aim of the present issue of the journal is to update the Pediatrician on common musculoskeletal ailments which are seen on an every-day basis in their clinics. We have chosen common Pediatric musculoskeletal conditions which pose a challenge both in terms of diagnosis and subsequent referral to the Orthopedic Surgeon.

Clubfoot or Congenital Talipes Equinovarus is a fairly common congenital condition which causes (preventable), lifelong deformity. Recent advances in the management of Clubfoot by the Ponseti treatment forms an important landmark in the history of Orthopedics. Originally described by Dr. Ignacio Ponseti from Iowa, USA in 1963 [2], the treatment could get global recognition only in the late nineties. The manipulation and casting technique needs to be started as soon after birth as possible as early treatment ensures a high success rate of around 90 % in all forms of clubfoot [3]. In fact the treatment has been found to have a success rate of around 84 % even when used in children more than 7 y of age in an Indian cohort [4]. A brief pathoanatomy and the Ponseti technique has been described by Li Zaho and co-authors in their article on early recognition and management of congenital clubfoot [3]. It is imperative to note that the application of Ponseti technique is not limited to the Orthopedic surgeons alone. Literature from across the globe suggests that the technique can be easily learnt and practiced by Physiotherapists and non-orthopedic surgeons [5].

Osteomyelitis in children can have long term disabling outcomes and therefore it is essential to recognise, diagnose and manage acute osteomyelitis at the earliest by the treating Pediatrician. It won't be an over exaggeration to say that the diagnosis and if possible treatment of acute bone and joint infections in children should be initiated by the Pediatrician even before referring the child to the Orthopedic Surgeon. Acute hematogenous osteomyelitis is most commonly caused by *Staphylococcus aureus* but fastidious organisms like *Kingella kingae* are being recovered more and more in recent times [6]. It is important to note that the choice of antibiotics in musculoskeletal infections is variable and depends on local bacterial flora prevalent in that region. With advancements in diagnostic methods, more and more organisms are being recognised and therefore it is essential for the treating pediatrician to be well versed with the current organisms and the antibiotics available for treatment. In countries

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like India, knowledge of resistant organisms is also essential. Methicillin Resistant *Staphylococcus aureus* (MRSA) is preferably treated by clindamycin but in 10 %–25 % cases with clindamycin resistance, vancomycin can be used [7]. The management of septic joints in children is even more urgent as pus induces chondrolysis causing rapid destruction of the cartilage [8]. It is therefore essential to identify the joint involved at the earliest and an arthrotomy be performed as soon as possible. An algorithm for the urgent management of a septic joint in a child is presented by Aggarwala et al. in their article [8].

Previously called Congenital Dislocation of the Hip, Developmental Dysplasia of Hip (DDH) has an occurrence of around 0.5 per 1000 live births [9]. It is a disabling condition which is commonly missed in infancy, causing long term disability. Thus the Pediatrician should be able to diagnose and refer the baby with DDH at the earliest as conservative methods of treatment are most effective till the age of 6 to 12 mo. Besides clinical methods as described by Tomlinson et al. in their article, ultrasound forms an important tool of diagnosis [9]. The use of ultrasound in diagnosing DDH should be known to all Pediatricians more so with the absence of evidence of universal screening [10].

Traditionally back pain in children is considered to have a number of dangerous causes but in recent times it has been revealed that back pain in children can occur without specific sinister causes. Back pain in children can be due varied causes, a list of which has been enumerated by the authors in the article which emphasises on various means of diagnoses and treatment of important conditions causing back pain in children [11]. Persistent back pain in a child without a specific cause warrants the use of advanced imaging technique like an MRI for diagnosis. Conditions like Scheuermann's disease are characteristically seen in adolescents with growth spurt [12]. The Pediatrician needs to keep such conditions in mind when evaluating a child with back pain. In India, tubercular spondylitis (Pott's spine) forms an important and common cause of back pain in young children and should always be looked for by the treating physician [13].

To define and evaluate the functional abilities of children with spastic diplegia, special evaluation methodology is a must. The main orthopedic challenges in Cerebral Palsy involve those of spasticity, delay in developmental milestones, posture and movement problems, developing soft tissue contractures and bony deformities. As these problems change over time and as the child grows, accurate assessment of these problems is required to ensure appropriate and timely orthopedic management [14]. The aim of the article by Johari et al. is to give the Pediatricians a brief on evaluation methods and an outline of basic Orthopedic surgical methods in the treatment of spastic diplegia [14]. The Gross Motor Functional Classification System is the most frequently used and validated score for evaluating functional abilities in children with Cerebral Palsy [15]. Knowledge of the same is essential for the physician who has to follow-up these children over a long

time following surgery. Hip surveillance in children with spastic hip adductors is useful to avoid a future hip dislocation.

Injuries around the knee in children pose a special challenge to the treating physician both in view of the anatomical considerations of the immature knee and the unique pattern of these injuries in children. Missed knee injuries are not uncommon in children. Parikh et al. discuss history taking and clinical examination in these children in their article on knee injuries in children [16]. Rare fractures in children need a careful radiological evaluation. The evaluation of specific knee injuries in children like meniscal injury needs advanced imaging modalities like an MRI.

One of the commonest musculoskeletal presentation in a Pediatrician's office is limping. A child who can complain can reveal the site and type of pain as against lower limb pain in a toddler. We feel that limp is the 'language of the child who cannot complain'. Evaluating a child with a limp needs a head to toe examination [17]. Delineating out the cause of a painless limp is far difficult than that of a painful limp. There is a vast spectrum of conditions that can cause limping in a child. Transient synovitis of the hip and septic arthritis of the hip are two of the most common causes of limping in a child. Transient synovitis is a diagnosis of exclusion but recurrent episodes of transient synovitis need a careful evaluation and long term follow up. Perthes disease of the hip is another common cause of limping in children between 6 to 12 y of age. A thorough knowledge of all (and importantly sinister) causes of limping in a child is a must for the treating physician so that an early Orthopedic referral could be made to avoid missing important and potentially complicating conditions.

The diagnosis and management of pediatric musculoskeletal conditions pose a challenge to the treating Pediatrician. The aim of the present special issue of the Indian Pediatrics is to touch on some of the potentially common and serious conditions which if recognised early can be managed with good results. We have grouped the topics in two sets; the first set comprising of acute conditions requiring immediate attention, while the second set includes subacute / congenital conditions requiring a semi-elective approach. We hope these articles are helpful in updating the knowledge of the Pediatricians regarding these common Orthopedic conditions in children.

Compliance with Ethical Standards

Conflict of Interest None.

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