Forensic Aspects of Paediatric Fractures
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Differentiating Accidental Trauma from Child Abuse
Maxima debetur puero reverentia
A child should be given the greatest respect
Child abuse is a shocking social problem. Every time we are confronted through the media with stories regarding child abuse, we react with abhorrence. Every time we hear that children have suffered serious injuries and fractures that have been inflicted by adults, sometimes with lethal results, there is a wave of indignation and social unrest. It is an evil that every right-minded person would like to combat; however, the (knowledge) infrastructure to recognise these cases swiftly and accurately is not adequate.

Childhood is a playful journey of discovery with at times painful consequences. During this journey children may get hurt, due to a lack of certain specific skills or because they are not able to anticipate the danger of their actions. It requires specific forensic knowledge to distinguish between injuries that result from normal behaviour and injuries that result from child abuse. Since most physicians and social workers do not have this specific knowledge, there is a risk that child abuse will not be recognised as such. It is also possible that injuries are unjustly labelled as resulting from child abuse and that innocent people will be branded for life.

This book by Bilo, Robben and Van Rijn discusses in an accessible manner how a physician can recognise fractures that result from child abuse, and distinguish those from fractures due to other causes. Hence it fulfils a great need.

Forensic paediatrics is a branch of forensic medicine, which in itself is again part of forensic science. For a number of years, forensic medicine has been provided by the Netherlands Forensic Institute (NFI). In 2008, forensic paediatrics was added. The NFI would like to continue contributing to this field, since the demand appears to be larger than anticipated. Unfortunately, the cases of child abuse that have been discussed in the media represent only the tip of the iceberg. The NFI would like to invest in forensic paediatrics in two ways: by treating concrete cases and by organising education and training for physicians. In this manner the NFI will be able to contribute to the early recognition of child abuse in children.

It is my firm believe that the book lying before you will become a standard reference in forensic paediatrics. Hence I hope that it will be widely read, not only in the field of health care, but also within the field of forensic science. This will most certainly be in the interest of the many thousands of children that each year fall victim to child abuse.

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February, 2009
As a retired Consultant Paediatric Radiologist at Great Ormond Street Hospital for Children, London, and having specialised in skeletal disorders in general and in physical child abuse in particular, for the last 30 years, I welcome this important reference book. It draws together the available medical literature in an accessible form and provides a benchmark for good medical practice in relation to childhood fractures and physical child abuse. It will be a valuable addition to this largely neglected area of medical literature.

The authors are eminently experienced clinicians from three academic centres in the Netherlands. They bring important insights into the relatively common situation of children presenting for medical attention with fractures, whether these are occult or overt. The question of child abuse inevitably will need to be addressed if only to be excluded. This diagnosis is more pertinent the younger the child and understandably is a highly emotive subject both for the physicians caring for the child and more especially for the parents. In Western cultures the welfare and protection of the child are of over-riding importance and legal frameworks are in place to enable adequate child protection.

This text with its numerous illustrations will provide a valuable resource for effective and timely evaluation of the child by clinicians, especially casualty officers, paediatricians, paediatric radiologists, pathologists and orthopaedic surgeons. It will also be of value to other workers in the field of child protection and inevitably to lawyers involved in judicial processes.

There is detailed description of individual fractures sustained by children. Of particular value are the discussions of the mechanisms and biomechanics responsible for the causation of the fractures. Correlation with the history given by the carers is emphasised and may result in corroboration of the accidental nature of an injury, or, if inconsistent with the mechanism, will increase the possibility of child abuse.

Numerous peer-reviewed papers are cited, both from the more historical aspects of child abuse, but more importantly to justify the current accepted teachings on physical child abuse. Many up-to-date references are summarised and overall conclusions presented. When data are insufficient or incomplete this is stated. It is this meta-analysis from available research and more anecdotal case reports, which will prove of value in cases of suggested child abuse pursued through the courts.

The role of the paediatric radiologist in assessing the radiographic skeletal survey and supervising the imaging protocols is emphasised. A detailed understanding and knowledge of the normal appearances of the growing skeleton is essential when assessing normal variant findings in childhood and in their differentiation from bone injuries. Also the question of pathological fractures resulting from localised or
generalised underlying alterations in bone structure as a result of medical conditions with increased bone fragility is addressed comprehensively.

Fracture dating is of consequence when child abuse is suspected for better evaluation of the history of specific trauma given by the carers of the child. This is of no consequence when fractures are caused by more common well-documented and witnessed accidental trauma. The authors recognise that more research is needed in the area of fracture dating. There is imprecision about the rate of fracture healing resulting from variables that are sometimes indefinable. Also, defining landmarks in what is a continuous process may be quite subjective. The section on histology also details findings relating to fracture healing in addition to other autopsy findings.

I wish that this book had been available when I was actively involved in child protection.

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