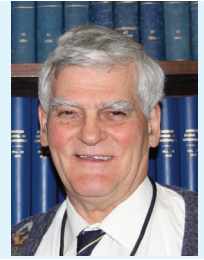


At the root of it all

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At first the infant, Mewling and puking in the nurse's arms. (The Seven Ages of Man: As You Like it, Act 11)

Was Shakespeare acknowledging the travails suffered by infants during tooth eruption? Or at least thought by many that infants do suffer? Eruption of the deciduous teeth traditionally has been blamed for a surprising galaxy of afflictions, including fever, diarrhoea, vomiting, seizures, tetanus, meningitis... and even death!¹ Yet the scientific evidence for such serious problems is lacking and present opinion agrees that any concurrence is incidental, with other causes being responsible.¹ However, the issue of pain associated with eruption is not so readily disputed, and Indeed may be due to the stimulation of nociceptive receptors by inflammatory mediators associated with the resorptive processes necessary for tooth eruption.¹ Of course the problem is that the infant cannot communicate except by “mewling and puking” and adults are left to assume the origin of the unhappiness. The most convenient is... teething.

So not only do we not fully understand the possible occurrence of pain.. but almost more surprisingly, the mechanisms of tooth eruption have not been completely resolved. Most certainly considerable progress has been made with the advent into dental research of molecular medicine and we are indebted to our authors Nel, Hendrik, Boy and Raubenheimer for a succinct paper dealing with the latest advances in unravelling the process... a common enough physiological sequence and yet still beyond our explanation!

Dental Research is challenged by this... and by many other presently obscure and yet frequent natural processes. The detailed factors controlling growth and development are under intense scrutiny... but to the uninitiated observer, it appears that every unravelling of a process uncovers yet more complexities, variations and yes, redundancies. Why should there be so many repetitions and different options to achieving the same outcome? The application of stem cells in Dentistry seems to offer huge opportunities... but we also seem to be on our first faltering footsteps in realising the potential. How can the biology of tooth movement be so dissected that any component part or sequence may be harnessed to enhance the achievement of more rapid orthodontics? Improved healing and repair of tissues stands to benefit all our surgical interventions... if only the process could be rendered to a simplicity which would yield to control by the clinician.

To those at the cutting edge of research projects there may only be accolades and encouragement. It is they who will be providing the answers and the guidelines sought by Dentistry in the quest to improve yet further the achievement of the Dental Health Care team.

The profession as a whole carries a responsibility to participate... clinical observation, proper records, follow up investigations are positive actions which can be taken in every clinic or practice. Direct support for research from the profession through the Association has long been an important encouragement to research. Indeed we have passed beyond the Shakespeare description of the reluctant learner:

*Then, the whining school-boy with his satchel
And shining morning face, creeping like a snail
Unwillingly to school.*

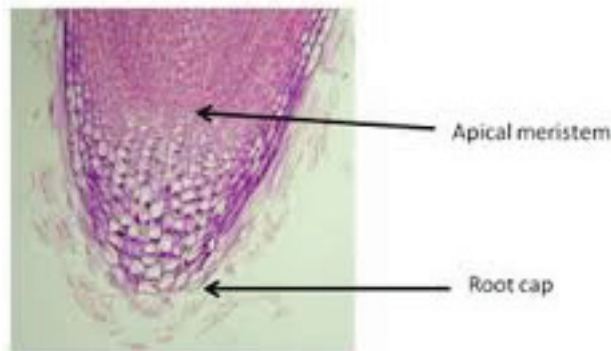
And can claim with justification to “play our part” as he eloquently illustrates in the fifth age of man:

*And then, the justice,
In fair round belly, with a good capon lin'd,
With eyes severe, and beard of formal cut,
Full of wise saws, and modern instances,
And so he plays his part.*

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For our purposes read “dentist” for “justice” and excuse the reference to “fair round belly”!

By coincidence the Journal has been using Medicinal Plants as pictures for our Front Cover. Consider then the similarity of the challenges of root growth in Botany and root growth in Odontology. Both roots must penetrate substances as they extend, both must properly grow in a specific direction. In plants the root tip is covered by a Root Cap, a protective mechanism which sheds cells as abrasion against soil is encountered. Deeper into the root is the area of active growth, the meristem. In teeth the equivalent of the Root Cap is the Epithelial Root Sheath (previously referred to as Hertwig's root sheath),



which is claimed to play more of a role in root formation than serving any protective function. Removal of the Root Cap affected root growth and penetration into compact soil.² Plants have an additional tool to ease the path of the growing root.... mucilage is secreted by the root cap to lubricate adjacent soil particles.

At the root of it all, Dentistry needs to continuously lubricate the wheels of Dental Research ... may it never be that our endeavours reach Shakespeare's seventh age... *Sans teeth, sans eyes, sans taste, sans everything.*'

Reference

1. Tsang AKL. Teething, teething pain and teething remedies. International Dentistry SA. 12 (5) : 48-61.
2. Iijima M, Higuchi T, Barlow PW, Bengough AG. Root cap removal increases root penetration resistance in maize (*Zea mays* L.) Jnl Exper Botany. 2003; 54(390):2105-9.