

Prof. Hock-Lim Tan: understanding the limits of pediatric laparoscopic surgery

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Experts from over 60 countries congregated in Suzhou, China to participate in the conjoint scientific meeting of 15th World Congress of Endoscopic Surgery (WCES 2016), Endoscopic and Laparoscopic Surgeons of Asia (ELSA 2016) and 15th Chinese National Congress of Laparoscopic from 9th November to 12th November. This unique congress presented a rare forum for the interchange of ideas across a very wide diaspora of experts and disciplines, and was highly successful by all counts.

In his keynote address, Prof. Hock-Lim Tan from Malaysia shared his experience, highlighting “The Challenges and lessons learnt in laparoscopic surgery in low birth weight children”. His keynote address earned much accolade from the audience when he highlighted the stark contrast between laparoscopic surgery in adults and newborn children.

In an interview granted to the Editorial Office of *Annals of Laparoscopic and Endoscopic Surgery (ALES)*, Prof. Tan (*Figure 1*) shared with us his experience as one of the pioneers and key opinion leaders in the pediatric laparoscopic surgery, a career spanning more than 25 years, when apart from simple diagnostic procedures, advanced paediatric laparoscopic surgery was not performed, simply due to the fact that there was no equipment available for

safe laparoscopic surgery in children in 1990. Prof. Tan saw this as a challenge which leads to his role in developing and inventing some of pediatric laparoscopic instruments some of which is still in use today.

Prof. Tan emphasized the importance for surgeon to understand the limits of safe laparoscopic surgery in newborns, and stated that these limits in babies are yet to be determined (*Figure 2*).

Interview questions

ALES: *Your talk today is about the challenges and lessons learnt in laparoscopic surgery in low birth weight children. Would you like to tell us what are the challenges in laparoscopic surgery in newborns? In dealing with this challenge, what would be your suggestion or experience you would like to share with us?*

Prof. Tan: The major challenge is to ensure that whatever procedure you wish to perform does not result in an adverse outcome for the patient. One important factor to consider is that the physiological and metabolic response in children is very different in newborns when compared to adults. As an example, children do not tolerate high insufflation



Figure 1 Picture with Prof. Tan.



Figure 2 Interview with Prof. Tan (1).

Available online: <http://www.asvide.com/articles/1321>

pressures or high flow insufflation. High pressure will result in severe diaphragmatic splinting and difficulty ventilating the patient, and high flow insufflation will result in hypothermia.

ALES: *We know that you're an expert in the laparoscopic pediatric surgery. Here would you like to tell us what are the common diseases of baby or child that'll need a laparoscopic surgery?*

Prof. Tan: There is now a very wide range of procedures being performed laparoscopically, including common conditions like indirect inguinal hernias, to very complex, extremely challenging procedures such as thoracoscopic repair esophageal atresia, laparoscopic pyeloplasty and the total laparoscopic repair of choledochal cyst with biliary enteric anastomosis.

ALES: *Based on your experience, compared to the laparoscopic adult surgery, what would be the biggest difference or challenge for performing the laparoscopic pediatric surgery?*

Prof. Tan: The biggest challenges include the total lack of space to manipulate instruments in a small cavity, acquiring delicate dissecting skills so as not to traumatize the tissues and the ability to perform very fine intra-corporeal suturing and anastomosis. There is also the fact that most electro-surgical equipment is designed from adult population making them mostly unsuitable for use in very small babies.

ALES: *To perform a successful laparoscopic pediatric surgery, what skill or knowledge you think a surgeon should possess?*

Prof. Tan: As stated earlier, the surgeon must be adept at operating in a very confined space, and be especially adept at intra-corporeal suturing. The surgeon also has to develop a well-trained team in the OR room, including an expert paediatric anesthesiologist familiar with the metabolic and physiological derangements encountered by infants during laparoscopy, and how to minimise these risks

ALES: *We note that you had invented several pediatric laparoscopic instruments. Would you like to tell us what leads you to invent these instruments? What principle is in your mind when you're inventing?*

Prof. Tan: This is an interesting question. I have not

given this much thought as what came to my mind when I invented some of the patented devices that are now in commercial production.

I guess the first requirement and consideration, is that the invention solves a technical problem commonly encountered in paediatric laparoscopic surgery. The second factor is to have had sufficient experience and depth of knowledge to come up with novel solutions not yet in existence. The Tan sleeveless "RoTalock" instrument for babies is a prime example of this.

ALES: *What encouraged you to be a pediatric laparoscopic surgeon? Or would you share with us some interesting experience at your early time being a pediatric laparoscopic surgeon?*

Prof. Tan: I was inspired to be a paediatric surgeon by one of my teachers. Not only was he a highly skilled surgeon, he possessed the very qualities of humility and respect for every one including patients and the family.

ALES: *What'll you do to update yourself with the latest progress?*

Prof. Tan: This is not easy. There are many extremely gifted paediatric surgeons in China and all around the world who are innovators, and one tries to maintain a professional contact them. As for progress in medical technology, one must be cognisant of some of the latest technology being introduced into the market which may have been developed for other disciplines, and remain open minded about developing alternative applications.

Expert introduction

Hock-Lim Tan, MBBS (Adelaide), MD (Doctorate in Medicine) Adelaide, FRACS (Paediatric Surgery) FRCS (Eng).

Prof. Hock-Lim Tan has had a long distinguished career in Pediatric Minimal Access Surgery since 1980's. He moved to Malaysia from Australia in 2007, and has been on the Board of Governor of ELSA and Chair of the Pediatric Surgery Subsection.

He has been responsible for the laparoscopic training of many pediatric surgeons in the Asia Pacific region and was one of the founders and past president of IPEG.

He is visiting Surgeon at Prince Court Medical Centre in Kuala Lumpur, Adjunct Professor of Surgery at Universitas

Indonesia in Jakarta and Visiting Professor of Yangon University.

He is one of the pioneers of pediatric minimally invasive surgery, and his major scientific contributions includes lymphatic sparing laparoscopic varicocelectomy, laparoscopic choledochal cyst excision, PCNL in children, laparoscopic pyloromyotomy for pyloric stenosis and laparoscopic pyeloplasty.

Widely published in refereed journals, his top five publications have had over 500 citations. He has also contributed 42 book chapters and is associate editors of the 7th Edition [2014] of "Operative Pediatric Surgery" by Spitz and Coran, one of the most authoritative operative paediatric surgery textbooks.

He has also invented several pediatric laparoscopic instruments including the Tan pyeloplasty scissor, the Tan endotome and Tan pyloric spreader, the "RoTalock" and the RoBi-Tan needlepoint bipolar forceps.

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Footnote

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