Anorectal malformations (ARM) form the most common group of anomalies dealt by pediatric surgeons all over the world. The struggle to identify their varied forms and deal with them in the most appropriate manner to achieve the desired goals continues to be the major challenge till date.

THE WINGSPREAD, USA

The ARM conference organized by Prof. D Stephens and Prof. D Smith from May 25–27, 1984 in Wingspread, Wisconsin, USA, formed a platform for the international authorities on the subject to share their experiences and form a universal classification. The emphasis at that time was on the relation of the rectal pouch to the levator muscle complex, thus classifying the anomalies into low, intermediate, and high depending upon whether the terminal rectal pouch had crossed the levator sling or not. Also, the surgical procedures were aimed at passing the rectal pouch within the puborectalis muscle sling, to the proposed anal site using a perineal, sacroperineal, or in combination with the abdominal route.

PSARP ERA

Things changed worldwide, with the popularity of the posterior sagittal anorectoplasty (PSARP) approach, as described by Prof. Alberto Pena in the early 1980s, for the surgical correction of high and intermediate varieties of these anomalies.

A number of rare anomalies, not previously recognized and included in the Wingspread classification, were also reported; perineal groove, H type of anorectal anomalies, rectal ectasia, rectal atresia, and most importantly the pouch colon were reported from the Indian subcontinent.

Additional associated anomalies were also reported, like the tethered cord (25% of all ARM anomalies). Consequently, there was lot of confusion regarding the nomenclature and uniformity in clinical diagnosis and investigative and surgical approaches for these malformations. The postoperative results were also difficult to be assessed and compared despite the fact that a number of scoring systems were described in the literature.

Thus, a need was felt for the revision of the previous classification, review of recent surgical approaches and developing international standards for assessing postoperative outcome.

THE BACKGROUND PLANNING

The famous book on ARMs, initially published by Prof. Douglas Stephen and Prof. Durham Smith in 1971, formed the basis of the workshop and the symposium. The experts were briefed in advance to prepare the chapters in accordance but not as a revision of that book. Each chapter was then presented in the expert group meeting and the suggestions as received from the discussions were then incorporated in the final manuscripts. The highlights of the outcome of the Krickenbeck meeting were presented to the participating delegates. Professors FD Stephen and ED Smith were the special guests.

THE KRICKENBECK MEETING

Professor Alex Holschneider, from Cologne, Germany, an expert with significant contributions in the field, took the initiative and organized an expert group meet 21 years after the Wingspread meeting. The Conference was held in Krickenbeck (Germany) from May 17–20, 2005. The aim of the conference was to have a thorough discussion on the international classification of ARMs, form international criteria for their treatment and develop a uniform international scoring system for comparable follow ups. The participants also deliberated on the newer issues related to recent advances in the etiology, genetics, diagnosis, early and late management and, methods of improvement in urorectal continence. This was followed by a symposium on Anorectal Anomalies, in Cologne on May 21, 2005.

HISTORICAL VENUE

Krickenbeck, a scenic and beautiful place, was a perfect venue for holding a serious meeting like this. The Castle, dating back to the 13th Century, was located 75 miles away from Cologne, amidst lakes, library and forests. It was a home away from all active business centers, major cities, airports, train stations and any habitation. An 1100-hectare property belonging to the WestLB with 693 Billion DM as assets in early 1998, it was very popular amongst academicians and researchers. The place, open
to nature, was perfect with single-room accommodations, restaurant, bowling alley, swimming pool, and a jogging track along the seven lakes. The varying sized meeting rooms (48 in number for 10–200 persons) were well equipped. The staff was friendly and helpful. The organization, hospitality and the academic environment were exemplary. Even the vegetarians were looked after equally well.

**Indian presence**

Like the Wingspread meeting, in the Krickenbeck discussions, a limited number of experts were invited from the world over. The Indian participation was quite significant and included the participation of Prof. Subir Chaterjee from Kolkata, Prof. Sudipta Sen from Vellore, Dr Sripathi from Chennai and Prof. DK Gupta from New Delhi. The unusual and rare anomalies quite often seen in the Indian Subcontinent, which were presented by the Indian group, were very much appreciated and included in the new International classification (Krickenbeck) under rare anomalies (being only regional).

**DISCUSSIONS**

The new Classification would be called International Classification (Krickenbeck). All common anomalies have now been put under the Major Group and are based on the presence or absence of the fistula in the perineum. These include anomalies like perineal (cutaneous) fistula, rectourethral – prostatic or bulbar fistula, rectovesical fistula, vestibular fistula, cloaca, no fistula, and anal stenosis.

The other group consists of rare and regional variants and includes congenital pouch colon, rectovaginal fistula, rectal atresia and stenosis, H-type fistula, and other rare defects.

There was lot of discussion on the incidence, diagnosis, nomenclature and the plan of management of vestibular anomalies (anus, fistula). The consensus was to include all these defects as vestibular fistulae. Similarly, the rectovaginal anomalies being rare (only 6% in over a series of 1800 cases reported by Prof. Alberto Pena) have now been put in the rare group of malformation.

Apart from the known surgical procedures, PSARP has been included as one of the important surgical approaches that would form the basis of surgical approaches to compare the outcome with those with the other surgical techniques still being used.

The postoperative results would be assessed by parameters that would include soiling and constipation (nil, occasional, or always) and voluntary bowel movements (yes or no). Though not mandatory, bowel movement studies and anorectal manometry may be used to assess the postoperative results.

The imaging modalities would remain important and be utilized to assess the associated sacral anomalies and the quality of perineal muscle complex. If three or more sacral vertebrae were present, they were unlikely to affect the surgical outcome. MRI was not considered necessary as a part of the workup of all patients with ARM, though Prof. A Pena reported a very high incidence (25%) of associated tethered cord anomaly. The technique of colostomy to avoid complications and fecoloma formation would also be added to the new book. A proper bowel management program to maintain the patients dry and socially acceptable has formed an integral part of the ARM management group. In many developed nations, social organizations are very active and have formed the ARM support groups.

These developments would now be published in the new book on ARM. The book would be published by Springer and edited by Prof. Alberto Pena from Cincinnati, USA, Prof. John Hutson from Melbourne, Australia and Prof. Alex Holschneider from Cologne, Germany. The book should be ready and would be presented during the next BAPS meeting in July 2006.

**FUTURE**

India has almost 400 million children under 14 years of age. Of the 23 million new births taking place, it is expected that over 17 million are going to survive each year. Anorectal malformations being one of the commonest anomalies (1 in 2500–5000 cases), any pediatric surgeon in India is expected to see a large number of these malformations each year. Medicine is fast growing and becoming very challenging. The expectations from parents are also soaring quite high. A judicious decision on the part of treating surgeons would be of paramount importance in relation to the timing and the surgical procedure. It would help in achieving the final aim of continent neo-anus at normal site. The results if poor with soiling or incontinence would make life miserable not only for the patient but also the parents. The known secondary procedures – re-do procedures, muscle transfers, biofeedback mechanisms, and artificial sphincters are either not effective or unpredictable.

One is expected to remain abreast with the recent ad-
Advances and global developments in the field of ARM, not only to adopt the uniform classification, but also follow minimal but sufficient investigative approaches, perform the procedure he/she feels more comfortable with and finally assess the postoperative results following the same criteria. If followed well, the Krickenbeck meeting and the forthcoming book on ARM would be landmarks in achieving these goals and remembered for long for all the meticulous efforts that have gone into its organization.

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