

Pediatric Urology in Europe: Some Historical Remarks

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"He who is inclined to ignore the past must be prepared to repeat it"

Since the dawn of mankind, people have been confronted with anomalies like spina bifida (earliest finding of a bifid sacrum of an adult fifth millennium B.C.), anal atresia, genital deformities and many other diseases.

War and hunting injuries could only be treated by specialists in this field as long as they were superficial in nature. Any penetrating lesion was inevitably followed by an untimely death. Successful trepanations however have been found in graveyards dating back more than 10,000 years.

We have to wait till the rise of the ancient Greek culture to see medicine as a profession become independent of sacerdotalism. The "Corpus Hippocraticum" (500-300 B.C.), became the first written concept of a more coherent vision on both medical and surgical subjects based on bedside observations and humoral pathophysiological ideas. Surgical interventions were incorporated in and subordinated to the medical philosophy. The need for specialists to treat fractures, abscesses and stone disease was recognized and it formulated the high ethical level that physicians should aspire to. Most importantly, it provided guidelines, the so-called Aphorisms, that were easy to memorize; of great value in a period in when no written books were available.

The best known Aphorism maintained its influence into the seventeenth century in the whole of Europe. It read as follows: "Those diseases that medicines do not cure are cured by the knife. Those that the knife does not cure, are cured by the fire. Those that fire does not cure, must be considered incurable".

Surgery as a craft

Until the thirteenth century, medical education in Europe was only possible in monasteries and other religious communities who, beside some royal courts, possessed the monographies and manuscripts necessary to pass medical knowledge to the next generation. Then we witness the foundation of the first universities. In contrast to Italy, first in Salerno and later in the northern part (Padua and Bologna), the university of Paris had no structural instruction in surgery during medical training.

The growing importance of the surgical craft however was reflected in the foundation of the surgical guild "Confrérie de Saint-Come" around 1250 in Paris. The members were either "Surgeons" in our present understanding of the term or "Barber surgeons" who were allowed to manufacture ailments and other medical items for external use only to be able to provide a living for themselves and their families.

Often neglected is the fact that by ordinance from 1311 (Paris), females were allowed to practice surgery. This ordinance would hold for more than two centuries. It ended most probably due to the fact that the socio-economic circumstances for the (barber) surgeons improved dramatically from the sixteenth century on. A development we unfortunately witness nowadays in Europe in a totally opposite direction!

In the sixteenth century, surgical education still consisted of apprenticeship training but was gradually extended with the possibility to follow demonstration lessons at several medical institutes. The anatomical theatres, of which many became famous all over Europe attracting more and more students from all countries, greatly enhanced this possibility. The first one was established in Leyden in 1593 soon to be followed by numerous others among

which the ones in Padua and later Paris became the most famous for many years. Regular examinations for surgeons and barber-surgeons were possible only after an apprenticeship of four and three years respectively.

In the seventeenth century, we see the first periodicals in the form of printed proceedings and reports published by the academies of science, like the famous **Philosophical Transactions** of the Royal Society in London 1666 and the *Academiae Naturae Curiosorum*, Germany 1670. It was however not before the master surgeons, many of whom also were doctors, started to perform more regularly the "normal" surgical interventions formerly left to the traditional cutters, that overall surgical education came to a higher level. An important role was also played by the numerous case histories published in that period. For the first time in history, specific anomalies were described and rare cases become familiar to all physicians who themselves never or only occasionally encountered one of these anomalies. We find, for example, the first adequate descriptions of children with spina bifida (Tulp) and exstrophy of the bladder (Schenckius, Bonn) in this period.

This marks the beginning of an era in which treatment of children was not only a matter of mercy but an obligation for any physician. Instruments were adapted to treat small children more adequately (Fig. 1). In the eighteenth century, the movement of surgery towards a separate and independent pro-

fession was first started in France. Thanks to the great influence of the surgeons of the French kings, the foundation of the *Académie Royale de Chirurgie* was realised in Paris in 1748.

Surgery as a science

In the nineteenth century, surgery was an academically based profession in the whole of Europe with Paris as its most famous centre. The more strict demands for the education of the surgeons also influenced the organisation of the hospitals. Many of the great hospitals, almost all founded in the eighteenth century, started to develop into teaching centres like *Collège de Chirurgie* in Paris with its neighbouring hospitals. St. Bartholomews (the Hunters, Cheselden), St. Thomas, Guy's and the London Hospitals, the University Hospitals in Altdorf (Heister), Göttingen (Richter), Würzburg, the Leyden Hospital (Boerhaave), the City Hospital in Amsterdam (Ruysch) and the University Hospitals in Genoa (Morgagni) and Bologna among many others.

The change of surgery from a practical art towards an applied science was well on its way in Europe by the efforts of the Academy of Surgery in Paris, by Hunter in London and by Richter in Germany. The nineteenth century showed an accelerated growth of knowledge in the fields of technology and sciences. Combined with refined di-

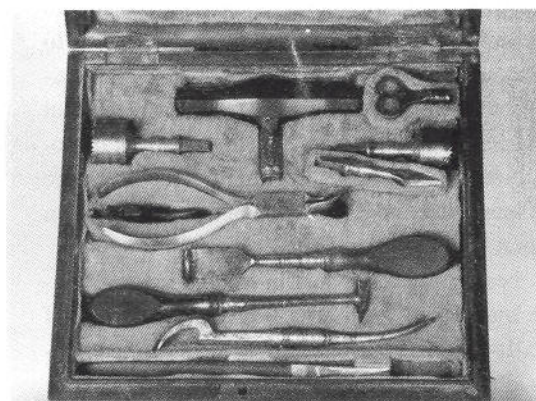
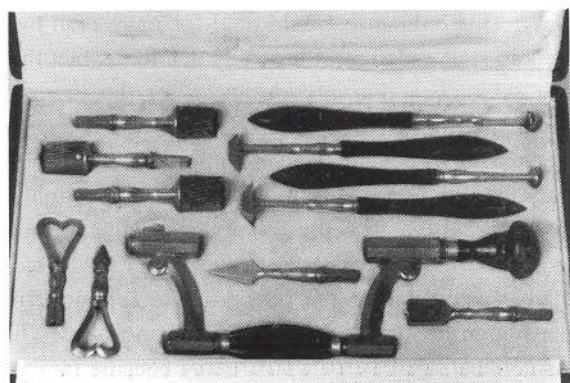


Figure 1. Two early eighteenth century trepanation sets: a) adult use, b) pediatric use.

agnostic methods like percussion techniques (Auenbrugger, 1761) and the use of the stethoscope (Laennec, 1819) clinical medicine and the related pathophysiology reached new heights.

Then two important events occurred. Firstly, the introduction of ether narcosis at the Massachusetts General Hospital in October 1846 that put an end to the excruciating pain the patient had to suffer while undergoing surgery. In less than a year, it was used throughout Europe.

Secondly, the introduction of antiseptics by Joseph Lister in 1867 put an end to the still firmly established belief that a wound could only heal with suppuration. He put Pasteur's observation successfully to work in clinical practice. It took a little longer before this idea was accepted throughout the medical world. Better instruments like the lithotripter (Jean Civiale 1826) turned one of the most frequently performed operations, the "old" lithotomy with its high risk of lethal complications into a relatively safe procedure. The growing insights made it possible to develop instruments more adequately and perform better planned operations.

The various vitalistic and natural philosophical systems made place for scientific materialism in medical education. Experimental studies gained their place in the curriculum and university departments changed into scientific institutions.

Uro-surgery as a scientific applied technology

In the last 100 years surgical education took on its presently known shape. Legislation made a training for surgery only possible at University. Surgeons became respected persons with a much higher social and economic status than before. For all the problems encountered in health they would find the solutions. They therefore resisted fiercely the development of separatists who claimed to have a better knowledge in certain areas.

However, for almost a century, a group of surgeons (especially in France and England) involved themselves mainly with urogenital surgery. In the beginning, lithotripsy played a major role (Heurteloup, Thompson, Guyon). Parallel to the growing interest in this particular area, the "Lichtleiter" of Bozzini once fully appreciated and engineered into a really useful instrument by Nitze and Leiter, opened a

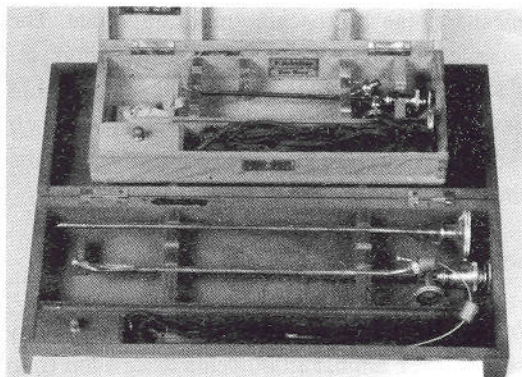


Figure 2. Necessary adaptation of endoscopic instruments for use in children at the beginning of this century.

whole new field. One was able to study organs in their normal physiology without changing the object. The bladder, soon to be followed by the ureter and kidney, came literally into one's reach. The prostate, as obstructive element to the urinary stream and a blessing for the "uro-surgeons", started to regain more interest, even more so since bladder stones started to disappear. Thanks to the growing insight in most of the functional and obstructive uropathology, the "Corpus Urologicum" expanded to such an extent that specialization in this area became inevitable.

The war these "uro-surgeons" had to fight with their colleague surgeons for acknowledgement of their specialty is characterized by many battles before the final victory, as confirmed by the appointments of chairs in urology at all universities, was a fact.

One of the causes for the growing interest in the treatment of children was the improvement of the results of the different operative techniques mostly developed in the beginning of our century when even children survived major surgery in increasing numbers.

Since children quite often are the victims of the more severe obstructive uropathies, these "uro-surgeons" had to re-design their armamentarium for the use in children (Fig. 2).

The growing diagnostic possibilities and the tendency to earlier interventions together with the miniaturization of the instruments made a more extensive experience necessary, initiating the further specialization in the treatment of children.

Surgical education still remained the cornerstone

of the urological training, but gradually specific uro-technical training has become more important. The endoscopic operative techniques and the more refined (especially radiographic) diagnostic modalities, strictly limited within the borders of their own specialty, increased the need for further specific training in urology.

Concluding remarks

We have witnessed the development of surgery which has taken almost 8,000 years to develop from a trade, mostly despised, into a highly appreciated and honourable profession. It is not surprising that the resistance to split this kingdom up into numerous republics was so fierce and only possible thanks to the rapidly growing quantity of new techniques and extended knowledge, which could not be mastered by one man.

Many regret this trend to more specialized fields in which people know more about less. It means certainly a restriction, some even see it as an amputation. However, it is the only direction that allows surgery to blossom as never before.

Most remarkable however, is the fact that the educational processes have always lagged behind the actual situations and still do so.

We now are witnessing the era of reconstructive surgery in all fields with the possibility of replacing defective parts or even whole organ systems. This change in attention for all aspects of one organ or organ system mostly involves more people from dif-

ferent disciplines united in a therapeutic team. This was first seen in neurology where neurologists started to perform operations (neuro) surgeons did not dare to do till much later.

Now we witness heart centres, renal centres and many other units in which the (internal) organ specialists closely cooperate with surgeons specialized in these fields. In some aspects, it appears that internal medicine and surgery are travelling the same road again in close cooperation.

We still have to adapt our educational systems to this new multidisciplinary approach. Thorough surgical training however, will have to remain the cornerstone for all who wish to cross the skin barrier of a patient and by doing so violate their integrity. People intending to perform surgery should be properly trained for the job. For pediatric urology this consequently means a training in urology and a further one or two years training in an acknowledged pediatric urology centre to study the anatomical, physiological and pathophysiological characteristics of the development and growth of organs and organ systems they are already familiar with. In the final educational phase, a companionship between the experienced pediatric urologist and his fellow needs to be close to obtain the best results for the benefit of all future patients.

Herbert Eckstein now was one of the few who mastered this art completely for which many colleagues will stay obliged to him forever.

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