Pierre Franco: master surgeon in the 16th century

Two surgeons in 16th century France made lasting contributions to surgical progress. Undoubtedly the greater of the two was Ambroise Paré (1510–90), who demonstrated as a young surgeon on his first military campaign that the cauterization of gunshot wounds with boiling oil or a red hot iron was not only cruel but also harmful, and who later showed that ligation of an artery was far more effective than cauterizing it. The other great pioneer was Pierre Franco, who died in 1561; this year we celebrate the 450th anniversary of his passing.

Little is known of the life of Franco apart from a few personal references in his own publications. The exact date of his birth, in Provence, is not certain; it was somewhere between 1500 and 1505. He came from a humble Protestant family, had little formal schooling and was early on apprenticed to a barber-surgeon. To escape religious persecution, Franco fled his native France and spent much of his life as an itinerant surgeon based in Lausanne, Switzerland, returning in his last years to Orange, France.

While in Switzerland, in 1556, he published his 'Petit Traité', and shortly before his death he produced his major work, 'Traité des Hernies', a major work of 544 pages, which not only contained a comprehensive review of hernia surgery and management, but also dealt with genitourinary diseases, particularly bladder stone, eye surgery (he was an expert cataract surgeon), limb trauma and amputations. Like Paré, he wrote in colloquial French and not in Latin.

In those pre-anaesthetic days, hernias were usually treated, if at all, by means of various designs of truss. Surgery was called for when an inguino-scrotal hernia became irreducible or when life was endangered by actual strangulation, in those days a common emergency. In his treatise, Franco writes: 'If the scrotum and genitalia and surrounding parts change colour to black, livid, or blue, or other bad colour, these all presage death and I am of the opinion that one should not undertake such cures not to incur blame, because hope is nil or very small'.

For operative treatment, the standard incision at that time was at the level of the pubis. Franco devised a low incision, at the base of the scrotum, which gave more direct access to the sac. Techniques for surgical release of the strangulation, both with and without opening the sac, are described. The inguinal canal was closed by suturing the internal ring. Franco, like other surgeons of the time, routinely removed the testis as part of the procedure. However, in patients with only one testis or with bilateral disease, he devised an operation in which the testis was retained.

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Another major interest of Franco was the treatment of bladder stones, a disease that was endemic in the middle ages and, indeed, up to the early part of the 20th century. This prevalence in the male adult population is readily explained by the combination of urinary obstruction and infection as a result of gonococcal strictures and of untreated prostatic obstruction. What remains a mystery was that bladder stone was also common in young children, a phenomenon which has all but disappeared in the western world but is still prevalent in developing countries.

Cutting for the stone is the oldest elective operation for a true pathological condition (excluding circumcision, which was performed as a religious ritual). It is mentioned in the Hippocratic oath and was carried out by ancient Greek, Roman and Hindu surgeons.

For centuries, the operation of lithotomy was performed with the patient held with his hips flexed and widely abducted ('the lithotomy position') by two or three sturdy assistants. The surgeon would incise into the base of the bladder through the perineum and remove the calculus, either with the finger or with a forceps or hook. This procedure became known as the 'apparatus minor'.

In about 1520, Franciscus de Romanis of Cremona, Italy, introduced a new technique, which was published by his pupil Marianus Sanctus in 1522 and which came to be described as the Marian operation. It was termed the 'apparatus major', because of the additional instruments that were used. A grooved staff was passed into the urethra and was cut down upon to enter the base of the bladder. Instruments were passed to dilate the opening, and forceps used to grasp or crush the stone. Franco took up the operation with enthusiasm, and modified it by inventing a forceps with cutting blades, a four-bladed forceps that could be opened 'that they could grasp a stone as large as an egg' and a two-stage operation. In this, after opening the bladder, Franco would wait for a large stone to work its way into the perineal wound or even extrude spontaneously.

In 1561, the year of his death, Franco performed the very first transvesical removal of a calculus. This was in a 3-year-old child with a calculus the size of a hen's egg. Franco was unable to remove the stone via the perineum because of its size. The child's parents begged him to do something, so he pushed the stone upwards against the lower abdominal wall by means of a finger in the rectum, got his assistant to fix it in this situation, then cut down onto the bladder through the lower abdominal wall and removed the stone. The child recovered, but Franco advised others not to follow his foolhardy operation!

Indeed, it was not until the 18th century that surgeons used the suprapubic approach, opening into the distended bladder extraperitoneally. Notable surgeons using this procedure in England were James Douglas at Westminster Hospital, and William Cheselden, of St. Thomas' Hospital, himself a brilliant exponent of the apparatus major.

Today, of course, the great majority of bladder stones are removed by lithotripsy or by endoscopic surgery. BJHM

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