

Penis carcinoma : The point of view of Alexis Boyer (1757-1833), eminent surgeon and anatomist

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Summary

Alexis Boyer, professor of clinical surgery at “La Charité”, first surgeon of Napoleon 1st, baron of the empire, left a considerable number of written works covering the whole of external pathology. A large portion of his work deals with cancerous diseases. By studying the chapter of

penis carcinoma one can appreciate the astonishing depth of Boyer’s knowledge on this matter, a knowledge which constitutes the seed of oncology.

Key words: anatomist, baron Boyer, oncology, penis carcinoma, surgeon

Life and career of Boyer

Alexis Boyer was born on March 1st, 1757 in Uzerche. His primary education was pretty much neglected. He started out as a lawyer’s junior clerk and at the same time became the assistant of a neighbouring barber-surgeon, in whose work he was much more interested. Then, he went on bedside work with a Master of surgery in Uzerche, Cruveilhier [1].

Towards the end of 1774 he went to Paris in order to study medicine. He attended the courses and classes of anatomy where he showed his skill. In 1781 he obtained the gold medal at the School of Practice (École Pratique) of the Medical Faculty. The following year, he became an intern at the Hospital *La Charité*, where his teachers were Antoine Louis (1732-1792) and Pierre-Joseph Desault (1744-1796), a head surgeon and a brilliant personality. He was quite attached

to the latter, despite major differences in their two natures, and he followed him from a distance without ever thinking of imitating him [2]. In 1788, he was at this same hospital as a surgeon doing his master’s degree. He was under contract to occupy this post for 5 years only, but later he was nominated for life and continued to serve under the orders of the grand surgeon Joseph-François-Louis Deschamps (1740-1824). Resident and surgeon at *La Charité* from 1792 on, he taught classes of anatomy. His courses did not have the same success as those of Antoine Dubois (1756-1837), but the treatise he published was welcomed by the students and it remained a classic for a long time [3].

When the Schools of Health (*Écoles de Santé*) were established in 1795, he was Sabatier’s assistant professor for the chair of operative surgery [4]. This same year, he worked at the Hospital *Hôtel-Dieu* as a doctor, then as Desault’s assistant professor for the first chair of clinical surgery (1795-1822). He soon exchanged his post with Raphaël-Bienvenu Sabatier (1733-1811) for the chair of surgical pathology [5]. His reputation dates from that time.

In 1801, with his fellow members of *La Charité*, Jean-Nicolas Corvisart (1755-1821) and Jean-Jacques Leroux des Tillets (1749-1832), he founded the Society of Medical Education (*Société d’Instruction Médicale*), “intending to enrich the medical education, and admitting only communications based on bedside

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observations". In 1804 he was nominated member of the surgical team of *Hôtel-Dieu* and, a little later, he became professor of operative surgery at the *École de Santé*, where he also gained the chair of clinical surgery. In 1807, he married Gabrielle-Adelaide Tripot, with whom he had a son and a daughter [6].

His reputation increased thanks to his close association with Napoleon 1st. Corvisart introduced him to the emperor and in 1805 he was nominated Napoleon's imperial first surgeon. In 1806 and 1807 he accompanied Napoleon on the two campaigns of the war with Prussia, but the life in the camps hardly suited his peaceful habits and he hastened to return to his students and start his normal life again. After these campaigns the emperor conferred on him the "legion of honour", with the title of Baron of the Empire [7].

Flexible and not given to moodiness, Boyer served all the political regimes. In the evening of the emperor's abdication, he is renowned to have said these words: "I lose everything but I will read a page of Seneca and I will not think of it any more" [8]. An enthusiastic patriot, he took part in the capture of the Bastille with the students of the College of Surgery (*Collège de Chirurgie*).

After the fall of Napoleon, the merits of Boyer secured him the favour of the succeeding sovereigns of France and he was consulting surgeon to Louis XVIII (1755-1824), Charles X (1757-1836), and Louis-Philippe (1783-1850) [9].

In 1817, he was consulted by the government on the question of the reorganization of medicine in France and on this occasion, he wrote a report.

Honours followed one after another: member of the Academy of Medicine, in the division of surgery (1820); third chair of operative surgery at *La Charité* (1823); member of the Academy of Science (1825); surgeon-in-chief at *La Charité* (1825), a post which he preserved until his death. He passed away on November 25th, 1833 in Paris, after having passed through all the phases of the French revolutions without having felt their repercussions [10].

Scientific and educational qualities

Boyer, as a confident, prudent and reserved surgeon, did not display any pretentiousness to elegance; but at the bedside of a patient, he gave his in depth attention and thorough medical care, the importance of which he had learned at the School of Surgeons of the 19th century. Tireless at work, conscientious in his practice and teaching, of unfailing sincerity, he was one of those you could take at their word.

The thought of creating school of followers of his views never entered the mind of this modest spirit. He was distrustful of innovations and tenaciously held on to established modes of treatment from his predecessors. He had the capability of enhancing what had been achieved before him, coordinating the conquests of the past and making them accessible to everyone. As a professor, he had none of the dazzling qualities which attract and fascinate a crowd. His slow, monotonous and unanimated diction was correct, clear and methodical. He went straight to the point, sought to inform and convince rather than dazzle and charm. He gave his students a solid education and even more invaluable upstanding principles, by showing them the so rare alliance of an honest heart, a beautiful talent and a good character.

Other great surgeons came after him, but they did not leave the same reputation for honesty and scientific probity.

Scientific works

Boyer was the first to establish the pathogenesis and the rational treatment of the anal fistula. He pointed out the role of the retrohyoid bursa located in front of the thyrohyoid membrane in the pathogenesis of the infrahyoid cyst referred to as *Boyer's cyst*. He was the first to describe *Boyer's infrahyoid bursa*. He invented suture needles and modified an extension device for femur fractures. He was opposed to articular resections and considered the metastatic abscess as primary lesion and not a secondary one.

The great works we have from him are: 1) *Traité complet d'anatomie ou description de toutes les parties du corps humain* (Complete treatise of anatomy or description of all the parts of the human body) [11]. 2) *Propositions de chirurgie* (Proposals for surgery) [12]. 3) *Traité des maladies chirurgicales* (Treatise of the surgical diseases) [13]. 4) *Traité des maladies chirurgicales et des opérations qui leur conviennent* (Treatise of the surgical diseases and the appropriate operations) [14].

The carcinoma of the penis according to Boyer [14]

The carcinoma of the penis develops under the influence of the same causes which produce other cancerous diseases, and moreover due to some particular causes. It sometimes succeeds ulcers or syphilitic excrescences exasperated by the use of irritant remedies; it was noticed that a very large number of

those to whom this disease occurred were suffering from phimosis which did not allow them to discover the glans. The presence of the humour provided by the glands which crown the base of the glans and its alteration while remaining under the prepuce, seem to be one of the causes which contribute to the development of the carcinoma of the penis. It would be interesting to know if the carcinoma of penis is a rare disease among the circumcised peoples, such as the Jews and the Mohammedans.

This disease does not develop always in the same manner, and it does not appear constantly in the same form. It usually starts with a kind of leak located on the glans, to which the patient pays less attention since he does not see it, because the glans is almost always covered, and since it does not cause any pain. However, a nodule appears, which becomes painful, and the pain is felt particularly during the coitus. Little by little, the nodule grows bigger, ulcerates, causes sharp sufferings, and sheds blood and a fetid suppuration. The ulceration extends on the glans, on the corpus cavernosum, which change into a fungous tumour, whose volume sometimes gets very considerable. In some cases, the penis carcinoma starts with a small hard nodule placed on the glans and particularly towards its base. This nodule increases imperceptibly; the glans and the corpus cavernosum become blocked, hardened, and then the disease appears in the shape of a more or less voluminous, harsh, scirrhus tumour, on which an ulceration is beginning to appear, the edges of which are hard, reversed, and out of which arises a purulent, fetid matter. Sometimes the swelling and the hardness of the glans are so considerable that the segment of the urethra which crosses it and the orifice of this canal are so strictured, that the excretion of the urine is almost entirely prevented. I saw a patient who could piss only a drop at a time and with the greatest difficulty, the bladder, however, contained a considerable quantity of urine, and it was so much distended that it formed at the hypogastrium a tumour which went up until near the umbilicus. I performed an amputation of penis; as soon as the urethra was cut, the urine escaped with impetuosity and the tumour of the belly disappeared. In this form, the penis carcinoma progresses more slowly, it causes less pain, and sometimes it does not even cause any pain at all.

No matter in which form the penis carcinoma is presented, the disease progresses more or less at a fast rate, and extends on the side of the pubis. At the end of a certain period, the lymph glands of the groin are blocked and swollen, sometimes on one side only,

sometimes on both sides, and the cancerous cachexia does not take long to appear with non-equivocal signs.

The penis carcinoma, like carcinomas of other parts of the body, can be healed only by the ablation of the sick part; but this operation should not be performed unless it is possible to cut in the healthy part, the glands of the groin are not blocked, and the cancerous cachexia has not appeared yet. If this operation is performed under favourable circumstances, it almost always succeeds; but unfortunately it seldom brings a radical cure. Generally, the illness grows again at the end of a more or less long period, either in the stub of the penis, or in the inguinal glands, and makes the patient perish miserably. When the operation is not practicable, or when the disease reappears after the amputation, the patient should content himself with the suitable means to calm the pains and slow down, if possible, the progress of the illness.

Cancer and the gangrene of the penis are two diseases which generally oblige the surgeons to resort to amputation of this organ. A haemorrhage resulting from a wound in which the penis would be cut across within almost all its thickness, or from the opening of an aneurysm of the corpus cavernosum, could also render this operation necessary, if this haemorrhage compromised the patient's life and the other means were insufficient to stop it.

One can find very little information about this operation by the old authors. It is probable that the fear of haemorrhage prevented several surgeons to practise it and gave them the idea of determining the amputation of the penis by strongly binding it to its healthy part with a cordonnet of silk thread, after having placed a cannula in the urethra, or after having introduced a probe into the bladder. I quote the history of a peasant who was operated in this manner successfully. This man had a cancerous tumour in the size of the fist on the penis, which was ulcerated. After having introduced a probe into the bladder, we clutched the penis behind the tumour with a thin, but extremely hard cordonnet, which we tightened very much. The patient supported, without complaining, the pain caused by the ligature. The following day we placed a second probe into the bladder in order to accelerate the necrotic degeneration and the fall of the tumour, which was wrapped in the rest of the penis, in a bladder wet enough to receive the urine and prevent the bad smell. On the fifth day, whatever was below the ligature had died; we cut it off with the lancet without letting a haemorrhage arise. Two days later, we re-

moved the probe, which had become useless after the fall of the cord with which we had bound the penis. Several authors recommend this process as preferable to the amputation; but the majority of the practitioners did not carry the same judgement from then on, and today this manner of extirpating the penis has entirely fell into disuse.

We can find in the art books some examples of amputation of the penis practised successfully; but the authors of these observations do not go into any detail on the performance of this operation. They are satisfied by saying that they cut off the penis with a lancet, that they stopped the haemorrhage with a cautery, or with astringent drugs supported by compression, and that the wound, treated according to the code of good practice, was healed up within standard time. Le Dran was the first to give his attention particularly to this point of surgery. He especially pointed out the circumstances under which this operation differs from all the other amputations. In those, it is a general precept: use a quantity of sufficient skin to cover the surface of the stub; in the amputation of the penis on the contrary, one must cut off more skin than the corpus cavernosum only. The reason of this precept is easy to conceive: if we cut as much corpus cavernosum as skin, the shrinking of the former towards the pubis and the stretching of the latter on the stub would prevent the view of the vessels and would make their ligature difficult and perhaps even impossible: the entrance of the urethra would be hidden, and it wouldn't be easy to find it but by groping, in order to introduce the probe there; subsequently, the healing of the wound would take long and it would be difficult. The precept, which we have just mentioned, is undoubtedly very important; but it is not the only factor necessary for this operation to be well performed; and in a report we published in 1791 in the *Journal de Foureeroy*, we tried to make up for the silence of the authors on this subject. The device required to carry out this operation consists of a straight lancet with a not very long blade, a pair of dissecting forceps, waxed threads, a probe of elastic gum, bonds to fix it, rolls of lint, swabs of lint, compresses, longuettes and a double T-bandage.

The majority of the authors advise to make the patient urinate before the operation; on the contrary, we think that the bladder would rather contain some urine so that the probe which we will introduce when the penis is cut, acts less against its walls. When we amputate the penis for a cancer, we must preserve as much as possible, while cutting, however, the healthy part. When the opera-

tion is carried out because of gangrene, we must cut the penis at the point where the necrotic degeneration stopped. Finally, if the operation is carried out because of an aneurysm of the corpus cavernosum which has been imprudently opened, we must immediately cut the penis above the tumour. The patient having been prepared for the operation by general remedies, and the hair which covers the genitals having been shaved, we will perform it in the following way.

The patient is lying down on the edge of his bed and the surgeon is standing on the same side; the latter surrounds with a linen the part of the penis which must be removed and embraces it with his left hand making sure that he draws the skin towards the glans, while an assistant takes hold of the penis at its root close to the pubis and also tightens the skin which covers it. Without this precaution, after the penis has been cut close to its root, we would likely remove a part of the skin of the bursa, and give to the wound a stretch much larger than that which it must have. When the parts are arranged in this way, the surgeon cuts at one go with the lancet the skin, the corpus cavernosum and the urethra. However, if we are obliged to cut down the penis close to its root, and if the skin is not very mobile on the corpus cavernosum, instead of cutting it at the same time as the corpus cavernosum, it would be better if we lanced it initially circularly into three or four lines above the point where we want to amputate the penis, and then cut the corpus cavernosum and the urethra on the level of the lower edge of the circular wound made on the skin. As soon as the penis is excised, we must stop the haemorrhage. For that, we prefer the ligature than any other means, as the arteries are large and apparent enough to grab them with a pair of dissecting forceps and bind them immediately, as in the amputation of the limbs. The arteries which must be bound are those which creep on the higher face of the corpus cavernosum, and which we call dorsal arteries of the penis, and those which are placed in the spongy tissue of this corpus. When these arteries are bound, the least compression is enough to stop the blood which escapes from this spongy tissue. After we have placed all the necessary ligatures, we introduce a probe of elastic gum into the bladder, and we proceed to the bandage of the wound. It is extremely rare that the vessels are so small that one cannot seize them with the dissecting forceps in order to make the ligature, but if that occurs, as I saw once following a cancer of the penis, the ligature would not be necessary, and compression would be enough to stop the haemorrhage.

Epilogue

One century before oncology was recognized as an autonomous discipline, the knowledge of the time on the matter had reached a quite high level, but it was disparate in various works of general medicine and surgery. Boyer was one of those who fertilized what had been achieved before them. He knew how to coordinate the conquests of the past, give everyone the gate to know them and give a new dash to the interest for oncology, which makes us consider him as a precursor of this discipline.

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