

The beginnings of thoracic surgery in Poland – a resection of an enormous tumor of the clavicle in Gdańsk in 1730



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Abstract

We present the case of a 27-year-old patient with an enormous tumor of the clavicle, who, in 1730, was referred to Ludolf Remmers, a famous Gdańsk surgeon. After clinical evaluation and further consultation with fellow surgeons, Remmers decided to remove the lesion surgically. A detailed description of the procedure and its post-operative period survived to this day, owing to the personal account of Paul Heinrich Moehring, who was present at the surgery. Moehring, a young German physician, botanist, and ornithologist, commenced his medical and anatomical studies in 1729 at the Academic Gymnasium in Gdańsk, Poland. The surgery was the subject of his publicly defended dissertation as part of the final examination, concluding his medical education in Gdańsk.

Key words: history of medicine, clavicular tumor.

Introduction

The detailed description of the surgery has been preserved to the present day in the repertory of the Gdańsk Library of the Polish Academy of Sciences. The report, which also included the particulars of the pre-operative period and the course of the patient's convalescence, was presented by Paul Heinrich Moehring (1710-1792), a physician, renowned ornithologist (author of *Avium Genera*, 1st ed. 1752), and botanist. A German, born in Jever in Lower Saxony, he became a student at the Academic Gymnasium in Gdańsk (Poland) at the age of 19. On August 4, 1729, he commenced his medical studies under the supervision of the celebrated anatomist Johannes Adam Kulmus (1689-1745) [1].

Moehring had deliberately chosen to study medicine in Gdańsk, even though a number of popular German universities were located closer to his home town. Since its

Streszczenie

W artykule przedstawiono historię choroby pacjenta, który w 1730 roku zgłosił się do gdańskiego chirurga Ludolfa Remmersa z ogromnym guzem obojczyka. Po badaniu i konsultacji z innymi chirurgami Remmers podjął decyzję o przeprowadzeniu operacji. Jej dokładny opis i przebieg okresu pooperacyjnego znany jest dzięki rozprawie będącej swoistą dokumentacją choroby. Autorem rozprawy jest Paul Heinrich Moehring, niemiecki lekarz, botanik i ornitolog, który w 1729 r. rozpoczął studia anatomiczno-medyczne w Gdańskim Gimnazjum Akademickim. Będąc obecny podczas zabiegu, Moehring wybrał tę operację jako temat rozprawy, którą przedstawił na publicznym egzaminie, kończącym jego gdańską edukację.

Słowa kluczowe: historia medycyny, guz obojczyka.

founding in 1580, the Academic Gymnasium in Gdańsk was well known in Europe for its excellence in academic education. A number of distinguished professors, coming from all parts of Europe, were appointed by the Gdańsk City Council in order to ensure high teaching standards in all the disciplines of science of that period. The faculty of natural sciences, comprising human anatomy and physiology, was founded in 1580, whereas the chair of anatomy and medicine was established in 1603 [2, 3].

The students of the Academic Gymnasium had the opportunity to assist during surgical procedures performed at the municipal hospital of Gdańsk. The reported surgical resection of the clavicular tumor was performed in the almshouse (*Xenodochium*) run by the Brothers Hospitallers of St. John of God, also known as Fatebenefratelli, in the suburbs of Gdańsk. The disease must have been very unusual at that period, and, as such, it had been chosen by Moehring to be the subject of his dissertation. On May

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2, 1731, to conclude his medical studies, he presented this case report as the public defense of his diploma in anatomy and surgery, written under personal supervision of Kulmus (Fig. 1) [4].

Case description

In June 1730, a 27-year-old man, Jan Lampeke, visited Ludolf Remmers (1696-1777), a famous Gdańsk surgeon, complaining of an outgrowth on the left side of his chest. Its rapid enlargement was causing such severe pain that the unfortunate man was no longer able to work. The tumor was clearly visible through his clothes, and was notably protruding. Upon palpation, the tumor was found not only to be extremely large, but also remarkably hard. The patient could not pinpoint the origins of the lesion; he recalled, however, that in his childhood, he had suffered a high fall. Soon after that episode, his arm started hurting, and later the patient noticed the presence of a tumor. Three years before Lampeke met Remmers, the tumor had been growing at its highest rate. Ludolf Remmers consulted two fellow surgeons, who also examined the patient. They found that the tumor adhered to the thorax and had an uneven rounded shape with a wide base. The lesion was located in the upper left side of the chest, extending towards the neck. The tumor appeared to be amalgamated with the rest of the body, while protruding at least “the length of a man’s fist, long like a foot and four thumbs wide”. The lesion was rather immobile and hard upon palpation. At its margins, a number of blood vessels were visible, some of them finger-thick.

After scrupulous examination, a decision was undertaken to perform a surgical resection of the lesion with prior meticulous preparation of the patient. 400 years ago, surgeons were already aware that, due to the rich and complex vascular network present in the subclavicular region, tumor removal would not be easy. Concurrently, the surgeons expressed their opinion that the tumor might be an adipoma, atheroma, or a cyst [4].

Pre-operative patient preparation and course of the surgery

The patient was informed of the planned surgery and all possible complications and threats related to it. Despite the risks, due to the terrible suffering caused by the location and the weight of the lesion, the patient consented to the proposed procedure. Taking into account the patient’s severe undernourishment and fatigue, the physicians provided him with clinical nutritional treatment for a period of six weeks, together with some unspecified medication for blood detoxification and purging, which were administered alternately, as part of the pre-operative preparation.

The surgery was planned to be performed by Ludolf Remmers in the morning of September 9, 1730. All equipment necessary for amputation was prepared, namely: scalpels, hooks, needles, silk threads, antiseptic medications, including “a powder made from a fresh hoof, volatile flour, herbs with an antiseptic liquid made from oil of

vitriol mixed with vinegar” [see the Appendix for the Latin descriptions of these medications], as well as bands and bandages. The surgery was performed in the presence of local physicians and surgeons. A few students of the Academic Gymnasium, including Moehring, could also participate in the event. The patient was seated on a chair and strapped to it tightly around his arms and abdomen. Medical students kept his head still during the entire procedure to ensure that he would not move during surgery, which could plausibly jeopardize the success of the operation.

After two initial incisions of the skin above the tumor, performed with an intermediate scalpel (8 fingers wide and 1.5 fingers thick), skin folds were separated from the tumor sac. All large blood vessels in the area were also identified and ligated to prevent excessive bleeding from the wound. The surgeons were afraid that blood loss might be life-threatening to the patient due to his poor general condition and severe malnutrition.

The tumor was finally detached from the skin and pectoral muscles. Remmers noted, however, that the tumor was fixed tightly to the area adjacent to the clavicle. The physician could not detach the tumor at this site, which was at least one thumb wide and appeared to be osseous in nature. Neither a sharp scalpel, nor the surgeon’s physical strength could overcome the force with which the lesion was fused with the bone. Even with the help of the two fellow surgeons, he did not succeed in removing the tumor. All sharp scalpels were broken in the numerous failed at-

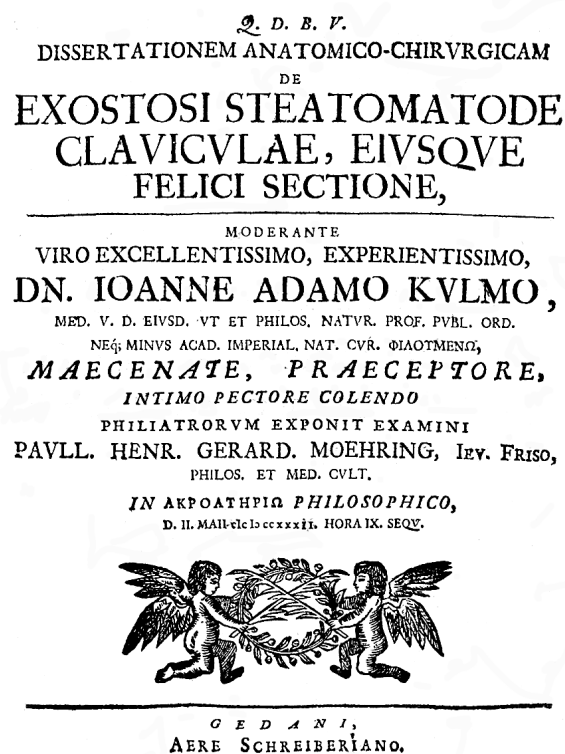


Fig. 1. Title page of P.H. Moehring’s dissertation

tempts. It became evident that the base of the tumor was completely osseous and amalgamated with the clavicle, and, to remove it, the surgeons would need to saw it.

Because of the lack of necessary surgical tools, Remmers was forced to postpone the operation. He disinfected the wound using antiseptic medications of that period (see above) and closed up all the previously uncovered and incised elements, including the pectoral muscles and the outer part of the tumor; finally, he covered the lesion with clean bands and bandages. The patient was very happy not to require any assistance when he was asked to move to a bed. Cardiac drugs and psychostimulants were administered alternately; however, no further information regarding their chemical composition was offered by Moehring in his *dissertation*.

In the afternoon, the surgery could be resumed. At first, the patient did not want to proceed with the amputation, as he was complaining of fatigue and mild dyspnea. Contrarily, no distressing signs or symptoms were noted on physical examination; the patient's pulse was regular, and body temperature was normal. Remmers insisted on resuming the indispensable surgical treatment as soon as possible. Eventually, the patient gave consent and the surgeons could recommence. The osseous base of the tumor was sawed, which allowed the surgeons to detach the tumor and conclude the operation. After the amputation,

the patient, presenting no sign of dyspnea, admitted that he was previously lying about being drowsy, because he was afraid of the inevitable suffering and pain that he believed would have been caused by the torture of his body being sawed without any anesthesia. It turned out, however, that the discomfort related to the bone being sawed, just as that caused previously by the resection of the muscular tissues, was within acceptable limits. During the entire surgical treatment, performed both during the morning and the afternoon, the patient did not lose consciousness, and there was only minor bleeding from the wound [4].

Macroscopic description of the tumor

The weight of the tumor was nearly 5 pounds (1,600 g). The fragment adjacent to the clavicle was particularly hard, while the remaining parts were partially osseous, partially cartilaginous, with some yellowish adipose tissue and bright-red fragments [4]. Based on the reported description, it can be deduced that the lesion was in fact an osteo-cartilaginous exostosis formed at the site of an incorrectly healed fracture (Fig. 2).

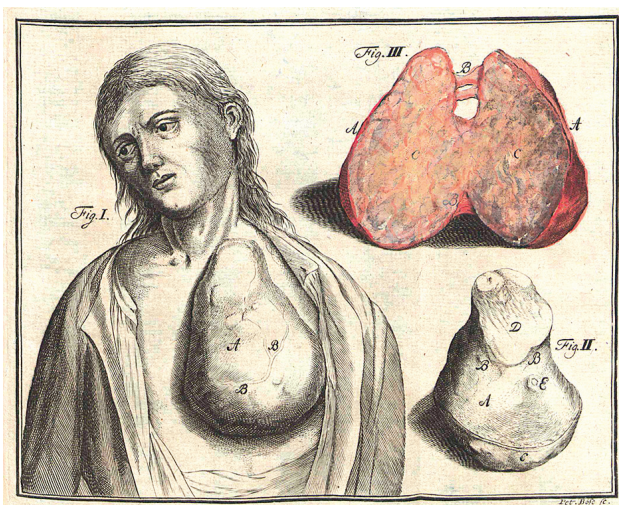
Post-operative period

The patient required medical assistance for a period of 22 days. Its detailed description can also be found in Moehring's *dissertation*. Immediately after the surgery, when the patient was still fastened to the chair, psychostimulants were administered in line with the common practice of that period. Their exact chemical composition remains unknown; however, hallucinogens were most probably among the important components of the medication in order to keep the patient at ease in the first post-operative hours. Accordingly, the first night passed without any complaint from Jan Lampeke. The important data concerning the patient's post-operative condition and wound healing are presented in Table I.

Discussion

The surgical treatment, the equipment used during the operation, as well as the pre- and post-operative management of the presented case were consistent with the indications and recommendations of respected contemporary authors in the field, proving the excellence and advancement of medical education provided at the Academic Gymnasium in Gdańsk.

The presented case, even if most spectacular, is not the only achievement of Gdańsk surgeons of that period. Apart from trivial procedures such as dressing wounds or treating fractures and dislocations, they performed a number of complicated operations, including trepanations and tumor resections. In 1788, an amputation of a breast tumor was carried out. In fact, tumor resections were already being performed in Gdańsk in the 17th century; for instance, Daniel Krohn (†1698) performed the surgical removal of a bulky face lesion on a 20-year-old man, after which the wounds healed successfully within 13 days. Slightly ear-



- I. The patient with the tumor, outgrowing from the chest and extending from the neck to the left breast.
- II. The osseous outgrowth after its removal and reversion.
 - A. The part of the tumor which was adjacent to the thoracic wall. Part of the skin had been removed during excision.
 - B. Fragment of the periosteum, slightly unbent. Bone localization is shown.
 - C. Lower part of the tumor, still covered by skin.
 - D. The basal part of the tumor, which had to be sawed in the middle.
 - E. Tuberosity hidden under the skin, osseous in the middle and cartilaginous in the periphery.
- III. Longitudinal cross-section of the tumor showing its inner structure.
 - A. Inclined sides of the tumor.
 - B. The walls of the follicle showing how the cut sides of the tumor were previously adjacent to each other.
 - C. The inner structure of the tumor: partially osseous, partially cartilaginous, and containing some yellowish adipose and bright-red fragments filling up the tumor.

Fig. 2. Images of the lesion in the pre- and post-operative period

Tab. I. Condition of the patient during the post-operative period and wound healing (November 10 to November 30, 1730) [4]

Day 1	The pulse was regular and slightly accelerated, but no fever was observed. The patient complained of a pain in the left side of his neck radiating to the cheek; therefore, a few clean bandages were soaked with camphor and applied to the wound, bringing immediate relief.
Day 2	Patient progress stable.
Day 3	The dressing of the wound was removed. The wound was found to be clean, with no exudation or bleeding. An ointment and some medication were administered to the wound and a new dressing was applied to it.
Day 4	In the morning, the patient complained of fatigue and a sleepless night with hallucinations [most likely the result of drugs administered directly to the wound the day before – editor's note]. Consequently, the patient was immediately bled by venesection and received a dose of stomach powder. In the afternoon, the patient felt much better and had transpired slightly. The dressing of the wound was not modified that day.
Day 5	The night passed without any complaints. In the morning, the patient felt strong enough to stand up from the bed and had his shirt and linen changed. Examination revealed, as expected, that the wound had suppurred.
Days 6-11	Patient progress stable.
Day 12	Unexpected wound suppuration was observed. In addition, the patient had chills and started coughing. The complications were soon brought under control.
Day 13	The dressing of the wound was changed to dry linen bandages only.
Days 14-20	During the following days, the patient required no medical assistance; however, he did not tolerate food, and, eventually, he spent the night of November 27 restlessly, because of abdominal bloating and flatulence, which had been escalating over the previous four days. On the following night, he complained of sleeplessness, anxiety, and fatigue, and he felt close to fainting.
Day 21	Patient progress stable.
Day 22	The bandages were finally removed, uncovering the cicatrized wound. The patient was able to take a bath without any assistance. The treatment was concluded.

lier, in the years 1671-1672, another Gdańsk surgeon, Christopher Lorentz, accomplished several resections of tumors, including a back lesion in a female patient and a cheek tumor in a young male patient [5].

The excellence in surgical management demonstrated by Gdańsk surgeons developed not only through practical professional experience, but also from the instruction gained from easily available and exceptionally numerous manuscripts available on site. These included all major medical works and compendia: medieval scripts, printed handbooks and anatomical atlases, as well as the most important publications of the 18th century. In addition to the book collection (including ca. 1300 manuscripts) of the Gdańsk Library, a public institution established in 1596, a number of volumes could be easily obtained from private collections of Gdańsk physicians and surgeons [6, 7].

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