

# Professor Dr. Asaf Dervis Pasha's Comments on Asepsis and Antisepsis in the Turkish History of Medicine

## Prof. Dr. Asaf Derviş Paşa'nın Türk Tıp Tarihinde Asepsi ve Antisepsi Üzerine Yorumlamaları

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**ABSTRACT** Prof. Dr. Asaf Dervis Pasha (1868-1928) is a famous Turkish gynaecologist. He lived in the 19<sup>th</sup> and 20<sup>th</sup> centuries. He began to serve in Haydarpaşa Medical School in 1909 as gynaecology professor. He applied European gynaecological system in this school. His paper with the name of Asepsis and Antisepsis was published in Osmanlı Seririyatı Mecmuası (Ottoman Clinics Journal) in 1910. This professor mentioned asepsis and antisepsis and some modern sterilization ways in the surgical operations. This paper gives some aseptic applications and sterilization tools in the operations in Turkey at the beginnings of the 20<sup>th</sup> century and some comments are obtained.

**Keywords:** History of medicine; asepsis; antisepsis; surgery

**ÖZET** Prof. Dr. Asaf Derviş Paşa (1868-1928) ünlü bir Türk Jinekoloğudur. 19. ve 20. yüzyıllarda yaşadı. 1909 da Haydarpaşa Tıp Fakültesinde jinekoloji profesörü olarak görev yapmaya başladı. Bu okulda Avrupa jinekoloji sistemini uyguladı. Onun Asepsi ve Antisepsi adlı makalesi 1910 da Osmanlı Seririyatı Dergisinde yayınlandı. Bu profesör asepsi ve antisepsiden ve cerrahide bazı modern sterilizasyon yollarından söz etti. Bu çalışmada, 20. yüzyıl başlarında Türkiye'de operasyonlarda bazı aseptik uygulamalardan ve sterilizasyon aletlerinden bahsedilmiş ve bazı yorumlar verilmiştir.

**Anahtar Kelimeler:** Tıp tarihi; asepsi; antisepsi; cerrahi

**P**rofessor Doctor Asaf Dervis Pasha (1868–1928), one of the well-known gynecologist- obstetricians, was born in İstanbul. In 1893, he graduated from the Military Medical Academy with the military rank of captain and served in Tripoli for some time (Figure 1).

After finishing his service there, he became assistant medical school professor and he was sent by the School Principal **Zeki Pasha** to Germany together with four friends in 1896. He worked with **Robert von Olshausen** (1835-1915) for five years in Berlin and after returning he was appointed as the professor in the newly-founded gynecology and obstetrics department of Gülhane. Having worked in Gulhane until 1909, **Asaf Derviş** was appointed as the professor of «gynecological diseases» department of the Medicine Faculty established in the same year and applied the European gynecology system for the first time in our country.



FIGURE 1: Prof. Dr. Asaf Derviş Pasha.

Until that time, gynecological surgeries had been performed by operators. After joining the Balkan war, **Asaf Derviş** served as the inspector of hospitals during the First World War and then he was sent by the Red Crescent to the Erzurum combat area as an inspector again. Having been promoted to professor in his profession, Pasha is one of the founders of the principles of surgery, asepsis and antisepsis in Turkey as well. He could only had one volume of his three-volume book called “Gynecological Diseases Hospital”, which was his first gynecology book, published.<sup>1</sup>

**Asaf Derviş Pasha** served in Haydarpaşa Medicine Faculty, too. In the meantime, the faculty period of medical education gives a more modern period of education in Turkey. As a matter of fact, the military and civil medical schools were combined at the building in Haydarpaşa in 1909 and took the name of Faculty of Medicine. The clinics in this institution developed over time. And in the hospital section built on the other side of the road and including clinics, there were three pavilions and the adjutant general’s office. This pavilion is adjacent to the physicians’ room in the center. The third pavilion was built behind the pavilion on the right, that is to say, on Kadıköy side. This pavilion is adjacent to a single-story corridor and two-storied. Above the physicians’ room in the center was built the same of the domed roof of the opposite building, but just a bit smaller. The physicians’

room leads to the two-story wards through a corridor, even the tops of the these corridors were used like a path.<sup>2</sup>

In the beginning, there were not wards including all the branches in the clinic pavilions. The section in the center was composed of the physicians’ room and polyclinics. Downstairs of the pavilion on the right was **Zoeros Pasha’s** clinic for internal diseases and upstairs was **Es’at Pasha’s** eye clinic. Later the eye clinic changed place with Zoeros Pasha’s clinic. Today, downstairs is the dermatological ward of Numune Hospital. Downstairs of the pavilion on the left was **Celal Muhtar Bey’s** dermatology service and upstairs was **Besim Omer Pasha’s** gynecology service. After establishing the faculty of medicine by combining the civil medical school and the military medical school in Haydarpaşa, the gynecology clinic of the civil medical school continued its activities in Kadıköy.

Moreover, today, the Eye and Neurosurgery wing of the Haydarpaşa Numune Hospital was the third pavilion and **Cemil Topuzlu Pasha’s** surgery clinic. **Cemil Pasha** performed surgeries in the amphitheatre on the left of this wing. This amphitheater was built upon the 3rd February 1902-dated letter of Rieder Paşa. And the single-story wooden building constructed in the time of the Faculty of Medicine and used as a Quarantine Service was located in the niche between Cemil Pasha’s amphitheater and the second pavilion. Later, it was knocked down during the construction of the kitchen and doctors’ dining hall of the Numune Hospital. After having been used as a quarantine service, this wooden building became **Operator Doctor Akif Şakir (1889-1961) Bey’s** orthopedic service in 1929’s. Again, **Besim Omer Pasha’s** Gynecology service, which was on the first floor of the 1st Pavilion, was later turned into the 2nd Surgery service due to Pasha’s staying in Kandıra for a long time.

After 1926, the construction of the fifth pavilion started again. Firstly, one story was built and then, after having remained deserted for 23 years, two more stories were added to the building and it started to serve as gynecology service. This section remained active for 5 years until 1933. Again, **Asaf**

**Dervis Pasha** was the gynecology professor at this faculty. In the program belonging to the Medical School, the courses given by Doctor Asaf Dervis are given below.

### PROFESSOR DOCTOR ASAF DERVIS PASHA'S COMMENTS ON ASEPSIS AND ANTISEPSIS

In an article written in 1910, Professor Doctor Asaf Dervis mentions his ideas about asepsis and antiseptics and precautions to be taken for performing surgical operation in sterile environments in Turkey. This article of the author's was published in the *Journal of Ottoman Clinical Instruction (Seririyat)* with the title of asepsis and antiseptics and included his clinical courses which he gave to students.<sup>3</sup>

The author provides this information at the beginning of his article: "Messieurs! As we all know that the remarkable development of surgery and its gentlest branch, gynecological surgery, over the last twenty years, the great improvement observed in the results of surgical operations, the decrease in the puerperal and pediatric deaths, the developments in pediatric surgery have all been achieved only through asepsis and antiseptics. For this reason, every year I take it upon myself to inform you about the level which scientific developments have reached by allocating my first lesson to this subject. Asepsis means destroying microbes completely; antiseptics means removing and expelling microbes partially, making them harmless as much as possible by killing some of them. Asepsis is achieved through high temperature, hot dry air or water vapor; antiseptics is achieved through chemical materials."

**Asaf Dervis** separates things to be sterilized according to their importance like this: "1- Bonding materials. 2- Wound care materials (cotton, gauze patch, compress) 3- Surgical material. 4- Operators and their assistants' hands, bodies, clothes and belongings. 5- Patients and puerperants' belongings 6- Air 7- Operators' hands and belongings.

Since microbes in the operating theatre live in saprophytic manner, their damages are limited due to their losing or decreasing infection strength and

growth. As for sterilizing tools, they may be carrying various saprophytes ranging from the most to the least harmful according to where they are and used.<sup>4</sup>

Moreover, the author also mentions about the methods of disinfection: "Sterilizer tools and surgical tools are sterilized inside drying ovens via high-temperature dry air; since high-temperature dry air burns sterilizer tools used for organs (tampon, gauze bandage, etc.) and wound closure materials (catgut, silk, etc), blunts and melts sharp tools, it is not possible to use this method; it can only be used for single-piece tools or the ones with strong solder, thin-walled glass containers, metal tubs, etc. However, sterilizer tools are disinfected exclusively with pressurized water vapor having a temperature of 110-115 degrees and there are various autoclave tools used especially for this purpose and all of them have the same function. We should keep in mind that in order to make the water vapor penetrate into the tools and such clothes as sheets and shirts (to be sterilized) fully, it is necessary to place them into autoclave boxes loosely.<sup>4</sup>

Needless to say, sterilizer boxes come in different sizes and are made of nickel and copper with holes on top and bottom and sides closed and opened by turning caps. Vapor penetrates through these holes and sterilize things inside boxes. Since some bigoted surgeons, that is gynecologists, regard even these boxes, which are exposed to a thousand kinds of uses, as inadequate, they prefer to use open boxes with padded walls, more precisely, rollers.

Although operating the device before physicians' eyes in order to check if the smelling requirements are met is the most successful precaution, it is not possible to do this every time. "For this reason, with the aim of inspecting cleaners, it would be a good idea to put minerals melting at the temperatures of 110-115 in the center of things to be sterilized and set hours at which these minerals will melt at this temperature."

The author also gives information about the sterilization of catgut, one of the surgical threads: "Of the wound closure materials and surgical threads, catgut is the most commonly used material. However, since it bears the most amount of

microbes because of having animal origin, it needs the same amount of sterilization. For the sterilization surgical tools, it will be sufficient to boil these materials in distilled water of 1/100 or borax solution of 0.5/100 for 15 minutes. The tools placed in a special wire basket are put into the device when the water is boiling and taken out 15 minutes later. Since ready water vapor is available in big hospitals, sterilizer devices are manufactured accordingly. When tools are sterilized, water is boiled for a couple of minutes by sending hot water vapor to the device.”<sup>5</sup>

Moreover, in the same article, **Dr. Asaf Derviş** provides the following information about the hygiene of surgeons and midwives: “As for the hands and belongings of operators and midwives: They are completely sterilized. However, since hands can tolerate neither boiling water nor hot water vapor at a temperature of 110-120 degrees, they cannot be sterilized. For this reason, chemical substances or some precautions are applied. If physicians and midwives need to visit puerperas, they should avoid approaching them and touching their sexual organs as much as possible.<sup>6</sup> For this reason, it is necessary to do with external examination, but if there is a necessity, examination should be with rubber finger gloves from anus and also rubber gloves should be used. One, maybe the first, of the important conditions to keep hands free of microbes and clean is to keep the skin away from lesions, eczema, and the like by keeping it always soft. The most effective chemical substances are sublimated ones and preferred to all other chemicals. Although alcohol is still in use today due to its penetration power and more or less disinfectant characteristic, it has lost its old fame. In brief, firstly hands are brushed with alcohol for two minutes, then fingers and nails are brushed in sublimated solution for three minutes. Sublimated (mercury) solutions are the most preferred chemicals.”<sup>7</sup>

Thus, prevention of an infection incidence can be achieved by not sneezing, not coughing, not talking loudly to some extent, it is not possible to keep silence in big operations. The only way of eliminating these inconveniences is to wear a face mask. The simplest and best of these masks is the piece of cloth with eyes-part open and worn like a

yashmak. In this way, we can prevent beads of sweat from dripping from operators and their assistants’ heads and faces on the operation area and causing an infection with microbes they include.”

The author also gives information about surgeons’ clothes: “By operators and their assistants’ clothes, shirts they wear during operations are meant. These should be long and thick. Rubber glove and armlet are used. Shirts are sterilized together with surgical tools, masks, gloves and armlets before every operation.”<sup>8</sup>

As it is known, in our country, asepsis and antiseptics were firstly practiced in real sense by **Prof. Dr. Cemil Topuzlu Pasha**. After working on both methods with **Prof. Rene Le Fort** (1869-1951) and **Peau**, the famous surgeon of the century, in Paris in 1887, **Cemil Pasha** returned to Istanbul in 1890 and after being assigned as a professor to the Military Medical School in 1891, he included antiseptics in clinical practice and then asepsis in 1894. Having witnessed operations performed on the heated marble platform of the bathhouse in the school when he was a student, Pasha depicted the view he encountered in Haydarpaşa Hospital. “There was not a room allocated for operations. Wounds were dressed still via old-style mohair and sponge. I saw hundred of worms on some wounds, I got both very sad and astonished”. Establishing a clean operating theatre immediately after seeing this, **Cemil Paşa** was assigned to Gulhane Military Medical Academy on 27th November 1891 and he tried to achieve the same conditions there as well and managed to have “an operation room with amphitheatre” and a surgery pavilion with 50 beds built within a few months. After having brought tools, drying oven, clean sheets immediately here, pasha started to apply antiseptics and after a while a complete asepsis in his operations.<sup>9</sup>

Going to Berlin in 1905, Topuzlu saw surgeons wearing rubber gloves and fabric masks there and after returning, he was the first person to apply these in our country despite his friends’ making fun of him. After Topuzlu, in 1897, Dr. Captain **Halid İzzet Efendi** applied asepsis and antiseptics in Haydarpaşa Military Medical School secondly and pub-

lished a book on this matter. **Prof. Rieder** and **Prof. Deyke**, the first operators of Gulhane Military Medical School, applied asepsis and antisepsis successfully between the years of 1898 and 1907.<sup>10</sup>

Again, in 1898, in Istanbul Sisli Children's Hospital and Istanbul Zeynep Kamil Hospital, too, modern operating theaters having asepsis conditions were established and the method was applied. In the Vakıf Gureba Hospital established in 1845, too, the rules of asepsis and antisepsis were applied for the first time in 1899. In fact, in 1876 Ottoman-Russian War, too, wounds were cleaned via solutions including carbolic acid and water. Again, in autoclaves, an environment saturated with pressurized water vapor at a temperature of 121 centigrade degrees, sterilization is made in 15-20 minutes. They were invented by **Charles Chamberland** in 1879 (Figure 2, 3). The name "autoclave" is the combination of the Greek word "auto" (one-self) and the Latin word "clavis" (key) and means "self-locked device". It is used in laboratories and operating theatres with the aim of killing microbes. At the same time, since it terminates microbes, it is used commonly in the production of canned fruits and vegetables.<sup>11</sup> Apart from sterilization, it can also be used in other procedures such as the lamination procedure in windscreens.<sup>12</sup>

## CONCLUSION

Asepsis-antisepsis and anesthesia, two big victories of surgery, started to take its modern shape in the middle of the 19th century and reached our country with a delay of a quarter of a century. With both methods developing very rapid, painless operations are performed successfully under sterilized conditions in our operating rooms today and patients are provided with cures. In this respect, **Asaf Dervis Pasha's** efforts are important.

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*Due to the presence of the name of the journal editor's among the authors, the assessment process of the study was conducted by the guest editor.*

### **Source of Finance**

*During this study, no financial or spiritual support was received neither from any pharmaceutical company that has a direct*



FIGURE 2: An Autoclave



FIGURE 3: An autoclave belonging to the nineteenth century.

*connection with the research subject, nor from a company that provides or produces medical instruments and materials which may negatively affect the evaluation process of this study.*

### **Conflict of Interest**

*No conflicts of interest between the authors and / or family members of the scientific and medical committee members or members of the potential conflicts of interest, counseling, expertise, working conditions, share holding and similar situations in any firm.*

### **Authorship Contributions**

*This study is entirely author's own work and no other author contribution.*

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