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Last Tango of the "Sick Man of Europe" with the Spanish Lady*,**

"Avrupa' nın Hasta Adamı"nın İspanyol Kadın' la Son Tangosu

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**This topic has been presented orally by Prof. Arda, at the 42th World Congress of History of Medicine (ISHM), Cairo, 9-13 October 2010 and the authors have a published article on the same subject in Turkish (Arda B, Acıduman A: Türk' ün H1N1' le İlk İmtihanı: 1918-19 Influenza Pandemisinin Ülkemizdeki Görünümü., Klinik Gelişim 23(3): 28-35, 2010; with permission from the editor)

The influenza (H1N1) pandemic 1918-19 (Spanish flu) was one of the most catastrophic events in the history of medicine. Disease primarily affected the adults in the contrary with the general expectation to children and older people. The recent articles emphasized that the real mortality was 50-100 million. This article devoted on the Ottoman Empire had been affected by this pandemic or not. According to the general dissemination of the pandemic this question should be answered positively. A detailed description of H1N1 pandemic on this country, in the agony days of the "sick man of Europe", has been drawn in the light of archive documents; the Otoman Archives in Istanbul and Kızılay Archive in Ankara.

Key words: ***Influenza pandemic 1918-1919, Spanish flu, Ottoman Empire, History of infectious diseases, History of medicine***

1918-19 yıllarında İspanyol Nezlesi adıyla bilinen H1N1 pandemisi tıp tarihindeki en çok felaket yaratmış olaylardan birisidir. Genelde çocuklar ve yaşlılar hastalığa yakalanırken, bu salgında aksine yetişkinler öncelikle etkilenmişlerdir. Konuyla ilgili son yayınlar, gerçek mortalitenin 50-100 milyon civarında olduğunu vurgulamaktadır. Bu makale, Osmanlı İmparatorluğu' nun bu salgından etkilenip etkilenmediği sorusuna ayrılmıştır. Salgının genel yayılımına göre, bu soruyu olumlu bir biçimde yanıtlamak gerekir. "Avrupa' nın hasta adamı"nın agoni günlerinde yakalandığı H1N1'in ülkedeki ayrıntılı görünümü, Istanbul' daki Osmanlı ve Ankara Kızılay arşivlerindeki belgeler ışığında çizilmiştir.

Anahtar Sözcükler: ***Influenza pandemisi, 1918-1919, İspanyol nezlesi, Osmanlı İmparatorluğu, Tıp tarihi***

Prologue

The pandemic influenza (PI) was an epidemic that was effective between the years 1918 – 1919. From the historical epidemiology point of view, this pandemic has demonstrated a real disaster scene. An unusual feature of this pandemic was that it mainly killed young adults, instead of elder adults and infants. Another unusual feature of the pandemic was its mortality rate. Where the mortality rate of the pandemic was estimated to be approximately 21 million in 1970 (1), the death toll raised to higher numbers like 24.7 – 39.3 million in nineties (2), and in more recent articles it is stated as 50 -100 millions (3). Considering the mortality rate of World War I (WWI) which was around 8 million (8, 538, 315) (4), the severeness of the picture appears spontaneously.

The goal of this article is to investigate whether Turkey was affected from this pandemic or not. We may easily anticipate from the geography the pandemic was pervasive that, this happened. However the purpose is to study the case in details as a historical topic through documents and thus determine the extent the country was effected from the pandemic. The commencement and end dates of the pandemic also carry an importance with respect to the political history of Turkey. The commencement days of the pandemic, on one hand corresponds to the days of agony of Ottoman Empire, the so called "Sick Man of Europe"; and on the other hand it appears to be an interesting coincidence that Mustafa Kemal, the founder of modern Turkey was affected by the virus and healed before he started the Liberation War in 1919. The adjutant of Mustafa Kemal reports that he caught the disease during the epidemic that prevailed entire Istanbul (5). A similar personal observation is met in the biography

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of the famous painter Fikret Mualla. He states in his biography that the pandemic caused his mother's death. It is known that the nomenclature "Spanish Influenza" is being used in Turkish language since 1918. We can find Spanish Flu in the Turkish literature too, for example in one of the poems of Nazim Hikmet, while describing the ambiance of Istanbul in 1914-1918 period, Spanish Flu was also used besides typhus, mobilization, and wagon trade. Similarly, in different parts of Anatolia, for example in county Görele of the Black Sea Region, the fact that the Spanish flu pandemic caused thousands of mortality has been recorded in the social historical memory of the period (6). One may also find caricatures related with the pandemic in the newspapers of the said period (7).

There are also scientific publications denoting that Balkan countries such as Greece, Albania, and Bulgaria were also affected from the pandemic (8,9). However, there are almost no publication about the state of Turkey during the pandemic period. Two of these limited publications reflect the limited observations on the infection of the German troops during 1918 pandemic in Istanbul and observation of deficiency in the immune systems of the sick German soldiers (10, 11, 12). Therefore, tracing back and documenting the voyage of the Spanish Lady in Anatolia will illuminate the history of the H1N1 infection in Turkey and thus contribute to a complete understanding of the scene displayed by the pandemic.

Europe's Sick Man and the Influenza Pandemic; Spanish Flu or Spanish Disease in the Ottoman Empire

The 1918-1919 influenza pandemic occurred in three big waves. The first wave started in April 1918 and rapidly spread throughout the European countries. This wave had a clinically benign prognosis with low mortality rates and small number of complications. By the August of 1918 this first wave was over. The second wave which was called the summer-fall wave fiercely started in early October 1918 and spread throughout America, Africa, Asia and Europe. The characteristics of this wave were the severe course of the disease and emergence of fatal complications. It is estimated that half of the world population was infected and 3 % of the infected were dead in this wave. The 1919 wave, in turn, started in January 1919 and immediately spread across all Europe and ended in May 1919. With respect to its severity and complications, this third wave was milder than the second one (13). In Istanbul, the capital of the Ottoman Empire, the beginning date of the pandemic which was called the Spanish flu or the Spanish disease was July 1918. There are some articles related with this subject. An article was published in the *Ati* newspaper on July 14, 1918 with the headline of 'Spanish Influenza' (14). The article stated that the disease, which was called the 'Spanish' influenza with reference to the country where it first appeared and which had been ongoing in Europe for a while had also appeared in Istanbul and that there were several cases in certain parts of the city. The article provided information on the symptoms, findings and prognosis of the disease and noted that nobody had died due to it, the prognosis of the disease was 'quite benign', and all its harm was that it divested patients from their work for a few days. Professor Kravis from Berlin was referred as the source of the information on the disease and according to such information, the disease generally started instantly and without manifestation of any preliminary findings, the fever generally reached around 39.5-40 degrees [^{0}C], and it was accompanied with symptoms such as headache, pain in low back and joints, mild congestion and pain in the throat, and sometimes vomiting. During the prognosis of the disease, the pulse was low with respect to high fever and also a mild coughing was observed. High fever and other symptoms continued for 3-4 days and then recovery came with normalization of fever and disappearance of the symptoms. A caricature, by Sedad Nuri, was also included on the same newspaper (Figure 1) (7).

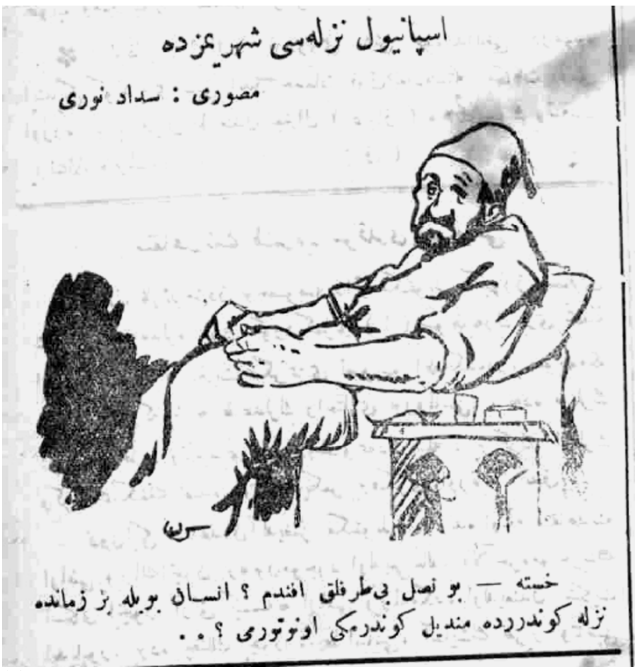

Figure 1: "The Spanish Flu is in our town"
"Illustrator: Sedad Nuri"
"Patient: What kind of neutrality is this? How come they send us flu but forget to send handkerchief at such a time? [from: *Ati,* Temmuz 14, 1918, 3]."

Another newspaper of the time *İkdam*, on its issue of July 18, 1918 (15), published the news with the headline 'The Spanish disease is epidemical in our city', which also indicated that the epidemic has 'immediately spread all over the city', however the newspaper emphasized that the disease was 'not pernicious at all'. The news article explained that, 'like all infectious diseases', the disease required no medication for treatment and the patient solely needed to have a rest for recovery. The article also included the following circular of Süleyman Nu'man Pasha, 'Field Inspector General of the Medical':

'The general view of the disease is as follows: it starts suddenly, high fever (39-40 [ºC]). Occasional vomiting, slow pulse with respect to the body temperature, severe headache (this usually leads to suspicion of meningitis), pain on the lower back and sides (these are not as severe as the head ache), no tonsillitis but severe rash and dryness in the throat, difficulty in swallowing, no or seldom indications of flu in the chest, disturbing cough (due to the dryness in the throat), and high level of leukocytosis in blood analysis. The disease lasts for 3-5 days. Now, any case with high fever, slow pulse with respect to the body temperature, severe pain in the head, rash and dryness in the throat, and leukocytosis is diagnosed as Spanish disease. Patients diagnosed with the Spanish disease will be subject to the following analyses: Laboratory analysis: smear culture on agar and blood agar from the throat, culture from blood to agar and bouillon, count blood cell (CBC), formula leukocyte, urine analysis, cerebrospinal fluid pressure and quality, microscopic analysis (fresh and dyed), culture. Clinical analyses: analysis of any indication of a clinical disease and the progress of the disease; is there any extraordinary indication? Blood pressure. In case of mortality: full autopsy, microscopic analysis of the heart blood and the spleen, culture (15).

This circular itself is an admission of the existence of a pandemic. The circular defines the actions to be taken in clinics and laboratories and lays down the requirement of full autopsy in case of mortality.

On its issue on 5 August 1918, an article with the headline 'The devastation caused by the Spanish flu' stands out in the newspaper *İkdam* (16). The article commences with some sort of confession: 'We first thought that this disease was nonhazardous and we did not attach much importance to it.' Then, the newspaper mentions the significant numbers of deaths in Switzerland and refers to the measures to be taken and the treatment.

In this respect, academically significant articles were also published. The 7th issue of *Dar al-funun Tıbb Fakultesi Mecmuası* of August 1918 included two articles by Dr. Akil Muhtar, titled, 'On the Spanish flu in Istanbul (1)' (17) and 'Some observations relating to Spanish flu (2)' (18), and the articles 'Morbus Iberikus (the Spanish flu)' by Herman Şopler (19) and 'On general pathology of this year's Spanish flu' by Semondos (20), where both were translated by Dr. Akil Muhtar. The same issue included another article, with the title 'Observations on the influenza that appeared on the battle field' by Dr. Dietrich (21). Akil Muhtar's first article (17) notes that in early summer of 1918, a microbial, acute, and easily spreadable disease called 'the Spanish disease' arrived from Spain to France and then, by means of war prisoners, spread to Germany and, after causing the highest mortality rate in Switzerland, it was also observed in Istanbul in early July. Many people were infected by this disease and, for example, infection of most functionaries of a certain department resulted in disruptions in the activities of that department.

Akil Muhtar (17) notes his personal observations and says that during infection, in most of the cases the fever rises instantly following a one-day fatigue, pain is observed in the low back and spine along with the severe headache and a fairly severe pain in the lower extremities, and the fever rises to 39-40 ºC and sometimes even higher, which then falls slightly through sweating. Sweating is also observed in those who do not have antipyretic medication such as Aspirin, and, although there are many exceptions, the pulse of the patients does not exceed 100 despite of the high fever. The patient has a coated tongue, the mucous membrane of the throat has a glossy view and a fairly severe rash, and sometimes the patient coughs mildly during the first days. Anorexia is a rule. The examination of the abdomen points out no change and the cases he examined did not have splenomegaly. Dr. Akil Muhtar (17) notes that there are usually no findings in the examination of the lungs and rarely a very slight amount of albumin in the urine. The doctor says that these patients spend the night with an interrupted sleep and night mares. Blood examination shows reduced leucocytes. The disease typically lasts for three or four days and then ends with defervescence. Anorexia, indigestion, weakness in the nervous system might last for a few days or sometimes persists for two or three weeks or more. Many patients cough for a period between two weeks and one month. Some patients are again laid up with fever after a few days and for a few days, and in these cases the recovery period is more troubled and takes longer time at this stage. In several cases pulmonary congestion was observed and one patient died due to bronchopneumonia.

Dr. Akil Muhtar (17), who notes that the mortality rate was approximately 1-2 % in Istanbul, adds that the extraordinary hazardous situation referred to for Switzerland did not exist in Istanbul, and the disease was rarely observed in very young children and the elderly. Refik Bey, a professor at the Ottoman Bacteriology Center, notes that he observed a strain of diplostreptococcus in the patients he examined but they could not derive a definite opinion on the pathogen of the Spanish flu.

Dr. Akil Muhtar (18) notes in the introduction of his second article that the Spanish flu which emerged in July

has diminished following a severe spread, and most cases were without any complications and there were few cases of mortality, and then the number of cases increased again after a relatively calm period of approximately one month. During the second period of spread, complications were more frequently observed and the mortality rate also increased. Bronchopneumonia, pneumonia and pulmonary congestion were the complications that Dr. Akil Muhtar personally observed in patients, and bronchopneumonia, which was extraordinarily hazardous, was mostly the cause of deaths. Usually on the third or fourth day of the Spanish flu, the general health condition of the patient suddenly gets worse and the fever gets even higher; breathing becomes difficult and a sticky pituitary starts to come out when coughing. Patients have pain in the chest and they start wheezing. Examination of the chest mostly reveals a mild reduction in the respiratory sound on both basements. The rough exhalation time is prolonged and is accompanied with low (deep) crepitations. This situation leads to death of the patient after 12, or sometimes 24-36 hours. Dr. Muhtar (18) notes that he did not observe any case of recovery from severe involvement. There were some cases which had milder bronchopneumonia and thus recovered. Diplostreptococcus was found in the pituitary of these patients. Pneumonia was evident usually in only one lobe and sometimes in both lobes of the lung. The pituitary of these patients had pneumococcus and the prognosis of the disease was similar with that of pneumonia. The symptoms of the disease are excalation (dead space), tubular murmur, wheezing, etc. in respiratory sounds. This pneumonia alone is also a hazardous, since it follows a catastrophe that wore out the body of the patient. Still, there were cases of such complications that were of benign character. Another complication was pleurisy, which was relatively rare compared to others. Dr. Akil Muhtar (18) also notes that preexisting but latent lung tuberculosis is being activated by the Spanish Flu. Differences such as diarrhea are fairly rare. There are cases suffering from nasal and anal bleeding. There were no cases of pericarditis or endocarditis. In some patients, albumin and urinary casts were found in the urine. As a result of his personal examinations, Dr. Akil Muhtar (18) believed that the cause of the complications was not the genuine Spanish flu pathogen but secondary infections. These secondary infections were sometimes caused by pnemeucoccus. And it is highly possible that the pathogen of bronchopneumonia was diplostreptococcus. Şopler (19) and Semondos (20) concluded that the Spanish disease, with respect to its bacteriological and pathological anatomy aspects was a recurrence of the 1889-1890 influenza.

The Spanish flu pandemic, which was observed in Istanbul in July, later emerged in Nusaybin, the first field hospital of the 6th Army, on 6 August 1918 (22). This disease which spread both among patients and doctors and functionaries, was carried by means of a railway staff and started with rhinopharyngitis and continued with sneezing, coughing and high fever. Despite of the protective measures taken, the disease spread to the central troops in Mosul on 15 August, then to the Tigris group in Tikrit on 25 August, and to the troops in Kirkuk and to the troops nearby on 26 August (22). The pandemic had arrived through the highways from Nusaybin and spread across the troops on the battle line through transportation group, and finally reached the troops under protection, such as penitentiaries and prisons, in Mosul. Dr. Noyan (22), notes that he was also infected by the disease and stayed in bed for 3-5 days. On contrary to the scope of the pandemic, there were no significant complications and the number of casualties was low. During this pandemic, only 8-10 % of the officers, soldiers and families were not infected by the disease. Upon completing his analysis, Dr. Noyan (22) reached to the following conclusion: in 15% of the soldiers, the disease was accompanied with rhinopharyngitis, dry flu and sneezing and coughing, and low fever and the patients recovered after having a rest for 2-3 days. In 30 % of the cases, the fever rose to 37.5 ºC along with the findings of flu, mild pain in the lower back, head and extremities, anorexia, and the disease disappeared in 3-4 days. In 35 % of the cases, the fever reached 38-40 ºC and some of these patients had severe bronchitis, pneumonia, bronchopneumonia in the respiratory tract, and a few patients had pleurisy. Some patients had anorexia, nausea, vomiting, diarrhea, and constipation. In some of the cases, the neural system was affected with high fever and severe headache, insomnia, delirium and agitation were observed. In 8-10 % of the cases, the Spanish flu was reported to cause hazardous complications such as capillary bronchitis, bronchopneumonia, pneumonia, pleurisy, otitis media and peritonitis. In 12 % of the cases, which was most frequently observed among the officers, the disease recurred with intervals of 5-10 days; the mortality rate, highest among patients having complications, reached 3.5 % in hospitals in Mosul. The rate of mortality due to Spanish flu was lower in Mosul than that was the case in Europe and Istanbul and this is explained by the fact that the pandemic occurred in August, the hottest month of the year (22).

According to the reports, the influenza emerged and spread very rapidly among the troops of the Taiz Regional Operational Command in Lahj, on the Yemen front and among the soldiers of the battle groups on the Aden front; the mortality rate in hospitals increased rapidly within five days. Due to this fact, a report was submitted to the Chief Physicians of the 39th Division Commandership in Lahj and the Taiz Regional Operation Command; the report dealt with the character and the prognosis of the disease between 26 and 29 September 1918, and laid down the measures to be taken. An article of the routine order of the Lahj Com-

mand, dated 31 October 1918, states that the number of influenza cases increased among the soldiers and, although most of these cases had mild prognosis, doctors had to forward them to hospitals in order to prevent any death from complications. The order also points out to the insufficiency encountered with respect to the hospital capacity and devices. It was ordered to allocate an infirmary porch to these groups and to ensure that their daily supplies were procured by the functionaries in charge of subsistence in line with the infirmary regulations, and they were given only hot flour soup and boiled coffee shells (23). Mortality due to complications forced the doctors in the group commands to send their influenza patients to hospitals. Thus, already scarce resources of the hospitals were put under further pressure by the excessive number of patients, and there were efforts to find solutions to this situation through, for example, establishing infirmary porches beside the hospitals.

Dr. Hüseyin Kemal Plevnelioğlu recorded that the pandemic was spread among the military troops in eastern provinces by the soldiers arrived from Istanbul and some other western provinces (13).

A telegraph message, sent by the Governor of Ankara to the Ministry of Interior on 12 October 1918, states that there were four cases ended with death in İskilip due to the Spanish disease, 15 people died in another county during the previous two days, all civil and military servants as well as the gendarmerie personnel were sick, and thus it was not possible to carry out any official activity in the region. In its reply to the Ministry of Interior, dated 17 October 1918, the Ministry of Health reported that Dr. Yusuf Izzeddin, a health inspector, was appointed to inspect the actions taken relating to the Spanish sickness that prevailed in Ankara and its vicinity and the necessary measures were taken in İskilip and its vicinity (24).

Another telegraph message sent to the Ministry of Interior by the Governor of Ankara, notes that the disease observed in Yozgat was not typhus but the Spanish flu (25). The documents we have show that the scope of the disease was highly widespread. The prisoners in the Yozgat prison were severely affected by the disease and the number of prisoners in the prison, which in the beginning was 400, reduced to half. On 19 November 1918, the Ministry of Justice of the time reported the situation to the Ministry of Interior and requested the measures be taken. The official correspondence points out to the fact that the number of cases of the Spanish flu was reduced to zero in January 1919 and that, during the most severe phase of the disease, the highest number of involvement and death occurred in Sorgun and Kahta, where 9855 people among the total population of 44 villages, which was 10844, infected by the disease and 1160 of these were dead (26).

Another example demonstrating the extent the Ottoman territory influenced by the pandemic: appears in front of us with the 28 October 1918 dated telegraph mentioning that the Police Chief of Beirut Muhtar Bey has died due to Spanish Disease. This evidence shows us that the disease was in the vicinity of Beirut in October 1918 (Figure 2) (27).

Another finding which demonstrates the extensiveness of the Spanish flu on the Ottoman territory relates to the requirement that the German and Austrian soldiers on the Ottoman territory to leave the country in accordance with Article 19 of the Mondros Armistice Agreement. Collection of a great number of German and Austrian soldiers in Istanbul and its vicinity in a short time period created infrastructural and organizational insufficiencies such as lack of vehicles. Besides, there were many patients among the soldiers to be sent to their own countries and this caused significant problems. In its letter to the Minister of War, Abdullah Pasha, dated 23 November 1918, Liman von Sanders reports that there were 1200 patients in Haydarpaşa Grand German Hospital and, among the troops that had arrived from Syria, 80 people died due to catarrh,

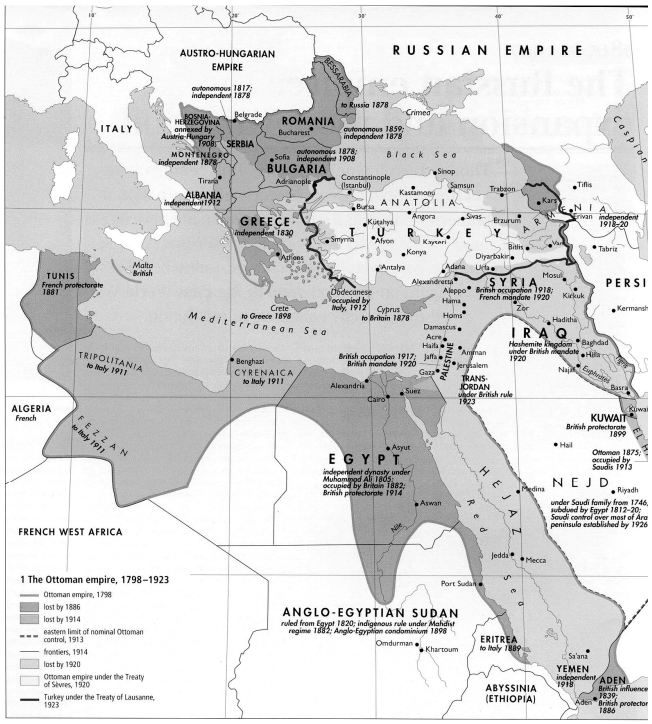

Figure 2: Ottoman Empire 1798-1923 [from: <http://www.worldstatesmen.org/Ottoman.jpg> (12 August 2010)].

which was a result of the climatic differences between Syria and Istanbul (28). This period is probably corresponds to the second wave of the Spanish flu that started on October 1918 and the casualties that Liman Von Sanders referred to as due to catarrh, most probably might be due to Spanish flu. Once again, according to Okur (28), upon the application submitted by the Ottoman Government to the Allied Powers for the immediate dispatch of the German patients to their own country, the Armistice Commission which gathered on 30 December 1918, decided on transfer of the German patients on the Jerusalem Hospital Ship of the Italian Government through Genoa, on condition that no person contaminated with the Spanish flu be permitted on the board. Thus, a total of 1055 persons, including 62 officers, 960 rankers and 33 nurses, were dispatched from Istanbul on the ship mentioned above. The condition that, 'no person contaminated with the Spanish flu be permitted on the board' gives a fairly significant clue on the extent, rate of spread and hazardousness of the second wave of the disease.

On its issue dated 7 December 1918, the newspaper *Zaman* published an article, 'Schools and the Spanish Flu', where the Spanish flu is reported to aggravate in Istanbul. The article notes that teachers and students were unable to go to school and the Directorate of Health and the Ministry of Education were called out to give due consideration and to take measures such as suspending the schools as it was the case in the previous period. Upon this article, the relating institutions carried out official correspondence on whether suspension of the schools was necessary or not (29). The correspondence shows that upon the aggravation of the Spanish flu in October (1918), the schools were closed temporarily and were opened again on 2 November 1918. A letter dated 8 December 1918, indicates that, according to the research carried out by the Directorate of Health, there was an increase in the number of cases and deaths as well as in the number of the students who did not attend to the classes across the city, and thus a decision was taken to immediately close down official and private schools until a further notice. The Directorate of Education of Istanbul Province issued a letter bearing the note, "Important and Urgent", which announced that the schools were closed down until a further notice and the situation was also announced through the press (30, 31). The correspondence between the Directorates of Health and Education (31 December 1918 / 1 January 1919) shows that the situation of the disease was still severe, the number of the death increased and there were approximately 400 deaths per week. Certain Armenian and Greek schools were reported to continue education despite the closure decision. The press publications of the time advocated for the implementation of quarantine measures regardless of sex and nationality and called for the immediate closure of such schools (31). Afterwards, the newspapers *Tasvir-i Efkar*, *Sabah*, *Vakit* and *Zaman* published announcements which suggest that the number of death from the Spanish flu decreased in Istanbul and thus it was now possible to open the schools again (32).

It is worth mentioning that while the devastation of the disease was in decline in Istanbul, the disease was widespread in the Lapseki region of Çanakkale; many people died due to the fact that the central prison house was too small and did not have adequate sanitary conditions. It is also significant that the Ministries of Justice and Interior carried out a series of correspondence on the transfer of some galley convicts to other prisons in order to prevent the other prisoners from contamination (33).

Dr. Noyan (22) reports in July 1919 that, during his temporary service as the chief of the department of infectious diseases at Haydarpasha Military Hospital, there were cases of the Spanish flu among the Turkish prisoners of war brought from Egypt and among patients coming from other troops located in Istanbul. This period corresponds with the post-third wave period. Although this third wave is generally accepted to start in January and end in May 1919, the cases of Spanish flu observed in July 1919 is evidence showing that the disease continued for a further period. Another supportive finding is the letter, dated 28 December 1919, sent by the Ministry of Interior to the Municipality and the Directorate General of Health. The letter starts with emphasizing that the Spanish flu caused many deaths in 1918 and notes that the disease still had impacts in all parts of the capital city, Istanbul, in 1919, almost all of the civil functionaries were infected by the disease, necessary measures were not taken to prevent this occasion, medications were expensive and doctor's fees were high and thus people were not able to buy medications or call doctors to their houses. The letter requests that the number of the doctors at the municipality should be increased and if necessary patients should be examined and treated free of charge by visits to their houses (34).

Another document, dated 28 December 1919, which shows that the disease was still active in 1919, a letter which states that a member of the board of directors of the Ottoman Red Crescent caught the Spanish flu and thus would not be able to continue to perform its tasks, because he had to have a rest for two or three months. The letter includes the request that necessary action be taken either to accept his resignation or to replace him with a deputy for three months (35).

Under the light of these documents, it may be suggested that the Spanish flu lasted until early 1920 in Istanbul.

Thanks to the personal observations of two major physicians of the time, we have certain amount of information on the symptoms, prognosis and complications of the Spanish flu in Istanbul, the capital of the Ottoman Empire at the time, as well as Mosul and its vicinity. However as noted by Öztürk (13), we have no collected data and exact information on the

spread of the 1918-1919 pandemic in Turkey. This is considerably due to the fact that the country was defeated and devastated during the war and that the period coincided with the early years of the War of Liberation. We have neither general statistical information, nor any data published on the basis of the numbers in military records.

In the chapter on "Influenza" in its textbook named *Infectious Diseases and Epidemiology*, Dr. Hüsameddin Şerif (36) notes that, according to the statistics of the Istanbul Municipality, the estimated number of deaths in Istanbul was 4-5 thousands in 1918. He also notes that the overall number of deaths was 33,615 in Istanbul in the same year, whereas it was 20,000 in 1917 and during the previous years of war and more than 20,000 in 1919-1920. Dr. Şerif (36) suggests that although Istanbul had a high population during these years, the disease had recurrent waves in the city and thus it would more realistic to attribute the surplus 13,000 deaths to the flu in 1918. This would be more realistic than the statistics of the Istanbul Municipality. Since the approximate mortality rate is 2 % in the Spanish flu, if we multiply the number of deaths in Istanbul with 50, we have 650,000 - a number which suggests that half of the population in Istanbul caught the disease. According to Dr. Şerif (36), the mortality rate varied during the 1918-1919 flu pandemic. It was summer when the pandemic first started and thus it had a mild course during this season. From October to the winter, a period which corresponds to the second wave of the pandemic, the number of deaths increased everywhere and the next wave in the following spring also had a high mortality rate.

Öztürk (13) also reports that, according to the statistics of the Istanbul Municipality, the number of flu-associated deaths in the year 1918 was 6,403 in Istanbul (Table-1).

As detailed above, the first wave of the pandemic that started in April 1918 reached Istanbul in July 1918. Both newspapers and the first article published by Dr. Akil Muhtar suggest that the disease had a benign prognosis and no complications in this wave. The introduction of the second article of Dr. Akil Muhtar is in accord with the information we have on the pandemic. The literature suggests that the first wave ends in August 1918 and the second wave starts in early October 1918. Dr. Akil Muhtar also says that the disease ceased after a certain active period (August 1918) and then recurred severely following a non active period of approximately one-month. This corresponds to early October 1918. The fact that this second wave, which caused severe complications and deaths, started simultaneously with the rest of the world might suggest that, rather than arrival of a brand new pandemic to Istanbul, it was the reactivation of a virus that had already reached Istanbul and caused sickness. The period in which Ayetullah Bey (1888-1918), one of the founders, football players and managers of Fenerbahce Sports Club, died due to the Spanish influenza (37) was a period where the mortality rate was high and the deaths were widespread in Istanbul, and thus that period might probably be associated with the second wave. On the other hand the 1919 wave, in turn, started in January and this period is closely linked to the destiny of the Turkish Republic. As Kutay (5) quotes, Cevad Abbas, the chief military adjutant of Atatürk, gives significant information on a fact relating to the 1919 wave of the Spanish flu: "We were in preparation to depart for Samsun. Atatürk was sick for a while. He had a fairly severe sickness and we were worried if he had caught "Spanish Flu", which was considered a terrible sickness at the time; finally he recovered in the house at Akaretler in Beşiktaş. Later his sickness recurred, in his house located in Sisli on a street that would later be named Halaskar Gazi" (5).

Age	Number	Ratio
0-1	319	4.6
1-40	4289	66.9
41-↑	1795	28.6
Total	6403	100.0

Table 1: Number of flu-associated deaths according to the statistics of the Istanbul Municipality (1918) [from: Recep Öztürk, "1918-1919 Pandemisi," *Cerrahpaşa Tıp Fakültesi Dergisi,* 20, (1989), 479-5, 483].

Although the 1919 wave is reported to be milder than the second wave with respect to its severity and complications (13), Dr. Hüsameddin Şerif (36) reports that the number of deaths was also high in the 1919 wave. The repeated sickness of Atatürk also conforms to the information on relapses and prolonged time of recovery given in the first article of Dr. Akil Muhtar (17). It is well known what Mustafa Kemal, who recovered from the Spanish flu did, after he landed in Samsun and what he achieved for the Turkish Nation.

On the other side, there are documents which evidence that the Spanish disease was observed at the center of Çanakkale and in Ayvacık county between March and May 1921 (38); that it later emerged in Akkarye in Mudanya (39), and although later it ended in Akkarye (40), the disease persisted for a while at the center of Çanakkale and in Ayvacık (41), and that it became milder in Ayvacık (42) while it continued at the center of Çanakkale (43). Yet, these assessments require further investigation.

Conclusion

Considering the above mentioned facts, it is possible to say that Turkey was also influenced by this pandemic. As a matter of fact, while emphasizing that the disease did not discriminate between social groups, some writers also refer to the name of the Ottoman Sultan. The disease, which made Mary Pickford, the richest person in the world, bedridden in her house in Beverly Hills, also influenced the Danish Queen Alexandrine, and Mehmed VI, the last Ottoman Sultan (1). It is reported that, among the British prisoners of war who survived the Siege of Kut and brought to Yozgat, Turkey, there were soldiers

who died of this disease, and that the weather was cold, cold as ice (1).

Another example demonstrating the significance of military records in this area is the data on the medical aspects of the WWI, edited by Macpherson, Horrocks and Beveridge (44). It is possible to find great number of data about the German, Austrian, Turkish and Bulgarian prisoner of wars in Macedonia region. These data provide details of the ration given to the prisoners of war (the Turkish prisoners of war were provided with 8oz potato and vegetables for 3oz bread, 1oz cheese for 4oz bread, 3oz dried fruit or 1.5oz jam and 1.5oz rice for 1oz olives, 1.5oz cotton seed oil for 1.5oz olive oil; where the prisoners of war and workers were given mule and horse meat instead of regular meat, 1lb regular meat was equivalent to 1 ¾lb mule or horse meat (1lb=454g) and include tables demonstrating the scales used for the calculation of the ration given to the Turkish prisoners of war (44). Similarly, it is reported that influenza was the infectious disease that prevailed the most among the prisoners of war in the United Kingdom (44). In general, it seems like the health of the prisoners of war was protected at a satisfactory level. In 1918, following the spread of the disease throughout the country, 34 of 35 deaths was due to virulent influenza in the Kegworth Camp. Following the inauguration of the new camp in Handforth in 1914 there were 19 deaths, of which 11 were reported to be due to influenza in 1918. There is no data in these records stating if the Turkish prisoners of war were also effected by the PI or not. There is only one chapter mentioning about pellagra that appeared among the Turkish prisoners of war in Egypt. A research committee was established to investigate this issue and the committee determined that the disease existed before imprisonment. The data show that most cases were subject to systematical medical inquiries and similar symptoms existed before imprisonment. Besides military records, there are also studies analyzing the records of the disease at international level. The three main sources of country data are as follows: 1. sources on morbidity, 2. sources on mortality, and 3. sources on population (45). Considering that the death statistics in Turkey only include the disease data of the post-1956 period, it is apparent that details on the pandemic influenza can only be obtained by a careful and in detail archive research (46). This was possible to a certain extent by the research carried out in the archives of the Red Crescent of Turkey and the Ottoman Archives of the Prime Ministry.

Considering the above detailed information and related archive documentation, it is possible to argue that the 1918-1919 influenza pandemic was significantly effective in the Ottoman Empire territory.

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