

**CASE REPORT**

# Wischnewsky Spots in Fatal Hypothermia: Case Report

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**ABSTRACT**

69-year-old male was found dead at the roadside in October month, death was declared suspicious by local prosecutor and autopsy was mandated. At autopsy, a large number of dark brown colored, oval-shaped lesions ranging from 1-15 mm under the mucosa defined as Wischnewsky spots, when stomach was dissected were observed. For the formation mechanism of Wischnewsky spots, there has no definite conclusions; more studies are needed on a case series.

**Keywords:** Wischnewsky spot, forensic, autopsy

**PREAMBLE**

**H**owever many macroscopic and microscopic non-specific findings related to the hypothermia have defined, in hypothermia-related deaths it is very difficult to determine the cause of death. We presented a case that was reported to found dead with Wischnewsky spots on the gastric mucosa. 69-year-old male case who was found dead at the roadside in October. At autopsy, a large number of dark brown colored, oval-shaped lesions observed diameters ranging from 1-15 mm under the mucosa defined as Wischnewsky spots, when stomach was dissected. Al-

though Wischnewsky spots at gastric submucosal area have occurred between 40-91%, there has no definite conclusions obtained about the formation mechanism of Wischnewsky spots yet. Therefore, more studies are needed on a case series. □

**INTRODUCTION**

**H**ypothermia, can be defined as falling core body temperature below 35°C (1). Hypothermia-related deaths occur more frequently among alcoholics, homeless and elderly cases, and infants. In the cases of death due to hypothermia, because of the lack of diagnostic autopsy findings it is very difficult to determine

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the cause of death (2-4). However many macroscopic and microscopic findings related to the hypothermia have defined such as erythema due to freeze (5), purple colored spots on elbow and knee (2), Wischnewsky spots on gastric mucosa (6), fatty degeneration in cardiomyocytes (7) and renal proximal tubules (8), hemorrhagic pancreatic necrosis (9) and cardiomyocyte necrosis (10). However, these findings are also indicated as nonspecific findings. Wischnewsky spots are dark-colored lesions in the gastric mucosa associated with hypothermia (6). These lesions, defined by Wischnewsky for the first time in 1895 (12), can be quite decisive in terms of hypothermia when evaluated together with other non-specific findings as such as frostbite or iliopsoas hemorrhage at autopsy and crime scene investigation (13-15). It is aimed to present a case that was reported to be found dead on roadside in October with Wischnewsky spots on the gastric mucosa by discussing in recent literature. □

### CASE REPORT

At the external examination of the reported 69-year-old male case who was found dead at the roadside; widespread muddy brown coat with small stones on whole body, maceration of the hands and feet, cyanotic appearance at canopies of lips and ears were detected. At autopsy, the heart was weighed 550 g, in the aorta and coronary arteries non-occlusive atherosclerotic plaques were observed. Aortic valve circumference 8.3 cm, mitral valve circumference 10 cm and left ventricular wall thickness 1.5 cm was measured. When stomach was dissected, a large number of dark brown colored, oval-shaped lesions observed diameters ranging from 1-15 mm under the mucosa (Figure 1 and 2). In histopathological examination of samples prepared from organ sections; in heart samples congested blood vessels and veins around the lipomatosis, congestion in samples of kidney, mild interstitial fibrosis and lymphocytic infiltration was detected. Necrotic mucosal gland structures with fresh bleeding in gastric mucosa were examined. Besides, toxicologic urinary, and hematological analyses could not detect any substance. Considered together with these findings, death was judged to occur as a result of the combined effect of hypothermia and heart failure.

### DISCUSSION

In fatal hypothermia cases, in different studies in the incidence of Wischnewsky bleeding at gastric submucosal area have occurred between 40-91% is given by Tsokos M et al. in the form of a study table (6). Although these lesions has been explicitly defined as hemorrhage by Wischnewsky, it has also defined as superficial erosions in the upper part of the gastric mucosal folds (16), wedge-shaped infarcts of the gastric mucosa (17), erosions surrounded by haematin without bleeding, necrotic mucosal gland structures in mucosa with fresh bleeding (18), microthrombosis (19) in gastric vein structures in the literature. However, in a different study these lesions are claimed not as ulcers or



FIGURE 1. Dark brown lesions under the gastric mucosa.



FIGURE 2. Dark brown lesions under the gastric mucosa.

erosive lesions, they are the typical dark black-brown macroscopic view of hemorrhage first occurs at gastric glands as a result of exposure to cold and then as a result of released hemoglobin exposure to gastric acid depending on autolysed erythrocytes (6). In a study of Takada M et al., characteristic cystic dilatation was detected at capillary structures in histopathologic evaluation and it has been claimed this is probably occurred after the functional collapse in the gastric mucosa microcirculation as a result of massive reperfusion (20). But there is no exact information regarding to the formation mechanisms of these lesions yet. According to the autopsy findings, maceration and mud plaster on hands and feet, Wischnewsky spots in stomach mucosa, in histopathological examination it was decided that death of our case that has lipomatosis at around heart blood ves-

sels and findings of heart failure, when was evaluated together with the scene conditions, occurred as a result of hypothermia.

There has no definite conclusions obtained about the formation mechanism of Wischnewsky spots yet. Therefore, more studies are needed on a case series. Although these lesions are often seen in cases of fatal hypothermia, while determining the cause of death exclusion of other possible causes of death, toxicological investigations, crime scene conditions, and whether there are other findings described in the literature available or not should be evaluated together with for the final decision.

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