


LETTER TO THE EDITOR

Coturnism as a cause of deadly rhabdomyolysis in Biblical times

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We read with great interest the article by Alekovic-Halilovic *et al.* [1] about the history of rhabdomyolysis. In this history, the authors report acute rhabdomyolysis due to the consumption of quail (coturnism) as a possible cause of the deadly plague that afflicted the Israelites in the wilderness of Paran (see Numbers 11:33) [1]. According to the historian Sulpicius Severus (363–420/5), about 23 000 Israelites died [2]. It is known that coturnism (quail poisoning) is a rare and usually non-deadly cause of acute rhabdomyolysis with a pathogenetic mechanism that has not been fully elucidated [3]. The view that rhabdomyolysis after the consumption of quails is due to poisonous plants, such as *Conium maculatum*, *Veratrum album*, *Aconitum napellus* or *Galeopsis ladanum*, on which the quails have previously fed, has been questioned [3]. Moreover, none of the common clinical manifestations of acute rhabdomyolysis from quail eating (e.g. muscle pains, weakness, dark urine) is mentioned in the biblical text and the Israelites' eating quail before receiving the Mosaic law (see Exodus 16:8,13) did not cause death. Considering that the events of the biblical narrative took place in the spring, as well as the direction of the wind (see Numbers 11:31 and Psalms 77:26), we can conclude that the quails were probably European types (*Coturnix coturnix*) that had moved (repatriated) from Africa and according to the available modern medical literature are not responsible for coturnism [3]. This view is also unethical, implying a God who is not a benefactor but a murderer, by thinking that he sent the Israelites 'poisoned' quails in response to their request to eat meat (see Numbers 11:4) in order to punish them for their ingratitude and for grumbling about 'manna'. Moreover, an epidemic form of confirmed deadly coturnism has not been described in the medical literature.

Undoubtedly the deaths of the Israelites was related to the excessive eating of quail meat [see also Psalm 77(78):29]. In

addition, according to the translation of the Septuagint and the interpretation of acclaimed Greek Bible commentators, their death occurred while 'the quail meats were still in their teeth and they had not yet stopped eating' or 'before they eat the total offered quantity of meat' [3]. According to the Septuagint, the Israelites died from 'cholera' (Greek word: 'χολέραν'), which had been announced as an upcoming divine punishment for the sensual (gastronomically) Israelites (see Numbers 11:20). It is noted that the term cholera in the Old Testament (only Septuagint) (see Wisdom of Sirach 31:20, 37:30), as well as in ancient Greek medicine, generally refers to gastrointestinal (digestive) disorders caused by hyperphagia or any disease characterised by diarrhoea and vomiting [3]. In our view, it is most likely that the 'very great plague' (Numbers 11:33) that afflicted the Israelites in the wilderness of Paran was a foodborne illness that was caused by bacteria growing in fresh or incompletely cooked meats (quails) and caused symptoms of acute gastroenteritis ('cholera') [3]. It is, of course, expected that excessive intake of infected food would cause a faster onset of the symptoms and complications of the foodborne disease due to the entry of a higher load of infectious agents into the human organism. Our view is reinforced considering the conditions of meat production and the possibilities of maintaining a vast number of quails (see Numbers 11:31–32) in high desert temperatures. It is also known that high environmental temperatures can not only accelerate the process of meat maturation but also favour the development of microbial pathogens that are responsible for the occurrence of foodborne illnesses [3]. The view of bacterial food poisoning as the most plausible cause of death among the Israelites who ate quails is supported by John Wilkinson, who believes that the organism responsible was most probably a member of the *Salmonella* group [4].

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CONFLICT OF INTEREST STATEMENT

None declared.

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