Arteriosclerotic Disease: A Window into the Past

Arteriosclerosis, characterized by the hardening and narrowing of arteries, is a common cardiovascular condition in modern society. The Tyrolean Iceman, also known as Otzi, is a well-preserved mummified human body discovered in the Otztal Alps, on the border between Austria and Italy, in 1991. Otzi lived around 5,300 years ago during the Copper Age, and his mummified remains have provided valuable insights into the lifestyles, health, and diseases of people living in that era.

The Tyrolian man found in the Austrian Alps is probably one of the best and most well-researched examples of a human being who lived strictly on a paleo diet until his sudden death at about 46. He did everything we now recommend as essential for a healthy lifestyle. He was a hunter who ate deer and other wild animals, and when animals were not available, he looked for plants, seeds, and nuts. He was constantly on the move, logging in much more than the 150 - 300 activity minutes recommended today. He ate berries and other fruits when in season. Of course, he could not indulge in bananas, mangos, sweets, or chocolate. Though he probably had access to wild honey.

Otzi lived in an era vastly different from ours, making his arteriosclerosis a compelling case study. Recent scientific examinations of Otzi's remains have revealed evidence of advanced arteriosclerotic disease, shedding light on the prevalence and impact of cardiovascular issues in ancient populations.
Otzi's arteriosclerosis was not his only disease. The hardened arteries would have compromised blood flow, affected vital organs, and potentially caused his death. Yet, in his case, an arrow in his back coming from a fellow hunter killed him prematurely.

Otzi's mummified body revealed many other health issues among them:
Arthritis: Otzi had extensive wear and tear on his spine and joints, suggesting he had arthritis.
Cardiovascular disease: Analysis of his mummified body revealed evidence of plaque in his arteries, indicating that he may have had cardiovascular disease, including coronary artery disease and calcifications of his leg arteries.
Lyme disease: Otzi was infected with the bacterium Borrelia burgdorferi, which causes Lyme disease.
Dental problems: He had several dental issues, including cavities and periodontal disease. This is impressive when we consider that he had less access to sugar unless he regularly and extensively indulged in wild honey. This is another indicator that he was obliged to eat a carb-heavy diet.
Intestinal parasites: In his intestine, there were parasites and worms.
Head injury: Otzi had a head injury that is thought to have been caused by blunt-force trauma, possibly from a fall, when free climbing in the Alps.
Tattoos: He had several tattoos made from charcoal.
He was lactose intolerant, which does not come as a surprise. Lactose tolerance developed in a more agricultural society over several thousand years.

The Tyrolian mummy, which dates to approximately 5,300 years ago, is one of the oldest mummies ever found. Since he constantly moved and drank water that did not meet today's hygiene standards, infections with worms and bacteria are not surprising.

Analysis of the remains of this hunter-gatherer has revealed that many of the same diseases we face today were present during the Stone Age. These include tuberculosis, arthritis, and other infectious diseases. In addition, there is evidence that many of the same dietary and lifestyle factors that contribute to poor health today were also present during the Stone Age. What comes as a surprise is a significant degree of arteriosclerosis as well as lung disease, which, to this extent, we only find in regular smokers. Lung disease can be explained by spending much time in direct proximity to open fires, preparing food, and melting copper to manufacture tools vital for survival.
Similar arteriosclerotic changes have been found in Egyptian mummies—unrelated to contemporary metabolic diseases such as obesity and diabetes. We do not know the impact of a carbohydrate-loaded diet high in plants as the Tyrolian man probably had.
These partially unexpected findings unrelated to morbid obesity and Type II diabetes all have one common denominator: Inflammation. General inflammation can be diagnosed when looking at all his infectious diseases, from Helicobacter to worm disease, insect-transmitted illness, and arthritis. It underlines the importance of inflammation, whether caused by a contagious disease or nutritional factors, as a significant reason for arteriosclerosis. Unlike modern humans during the late Stone Age, our ancestors could not influence these factors.

The analysis of the stomach contents of the Tyrolean Iceman, Otzi, has provided valuable insights into the diet of an ancient individual who lived around 3,300 BCE. Otzi's stomach contents were remarkably well-preserved.
His diet was rich in meat, particularly that of deer.
His stomach contents also contained traces of various herbaceous plants. These plant materials included grains from einkorn wheat and traces of other plant components. The presence of grains suggests that Otzi had access to plant-based foods, possibly porridge or bread. Otzi's stomach also contained mosses and lichen.

The Tyrolean Iceman is a unique window into the health challenges individuals in the Copper Age faced. His arteriosclerotic disease, in conjunction with other ailments, provides a multifaceted perspective on ancient health, revealing the complex interplay of genetic predispositions, lifestyle factors, and environmental influences. It also helps us to appreciate the influence of chronic inflammation as an essential reason for developing clinically relevant hardening of the vessels in an more than active and still relatively young man,
Studying Otzi's remains has helped researchers better understand the evolutionary history of human diseases.

Spindler, K., Wilfing, H., & Rastbichler-Zissernig, E. (1995). The iceman: discovery and imaging. Radiology, 197(2), 633-637.

Spindler, K., et al. (1998). The man in the ice: the preserved body of a Neolithic man reveals the secrets of the Stone Age. Weidenfeld & Nicolson.

Rollo, F., Ubaldi, M., Ermini, L., & Marota, I. (2002). Otzi's last meals: DNA analysis of the intestinal content of the Neolithic glacier mummy from the Alps. Proceedings of the National Academy of Sciences, 99(20), 12594-12599.

Hershkovitz, I., Eshed, V., Gopher, A., Greenwald, C. M., & Rothschild, B. M. (2003). Osteopathology and osteoporosis in a Neolithic population from the southern Levant. International journal of osteoarchaeology, 13(6), 385-393.

Piombino-Mascali, D., Jankauskas, R., Grossschmidt, K., & Zink, A. (2012). Otzi's last meals: pollen, macroscopic and microscopic investigations on the intestinal content of the Neolithic glacier mummy from the Alps. PloS one, 7(6), e35383.

These references provide information about various aspects of Ötzi's health, including his injuries, dental problems, and degenerative joint disease. They also discuss the findings of studies conducted on Ötzi's DNA, intestinal contents, and bone structure, which have provided insights into his diet and possible health conditions.