

"Long before it's in the papers"

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Scientists surprised to find Egyptian princess had heart disease

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Courtesy of the European Society of Cardiology
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An Egyptian princess had coronary artery disease more than 3,500 years ago, scientists say, in findings that challenge the conventional idea that heart illness is a modern-day scourge.

"Today, she would have needed bypass surgery," said Gregory S. Thomas of the University of California, Irvine, the study's co-principal investigator, of Princess Ahmose-Meryet-Amon of Egypt. Coronary artery disease is a blood vessel obstruction that can lead to heart attack, angina and death, and often results from sedentary lifestyles or too much fatty food.



Calcification, or tissue hardened by deposition of calcium, appears as white in a scan of the mummy of Princess Ahmose-Meryet-Amon. Considered indicative of coronary artery disease, calcification is seen in the right and left coronary arteries, marked RCA and LCA respectively. (Courtesy ESC)

"Our findings certainly call into question the perception of atherosclerosis as a modern disease," added Thomas, whose research helped identify atherosclerosis—the direct cause of coronary ar-

tery disease—in 20 Egyptian mummies.

The findings suggest that as a species we “are predisposed to atherosclerosis,” said co-investigator Randall C. Thompson of the St Luke’s Mid-America Heart Institute in Kansas city. This shouldn’t prompt people to give up on warding it off, he stressed, as it remains as true as ever that proper diet, exercise and avoidance of smoking can help do so.

Scanned images of the Egyptian royal’s coronary arteries are featured in two presentations at the International Conference of Non-Invasive Cardiovascular Imaging this week in Amsterdam. The princess, now the first person in history with diagnosed coronary artery disease, lived in Thebes (modern-day Luxor) in the mid-1500s B.C. Her diet was rich in vegetables, fruit and a limited amount of meat from domesticated animals, scientists said. Bread and beer were the dietary staples of this period of ancient Egypt, they added; tobacco and trans-fats were unknown, and lifestyles were usually active.

Thomas and colleagues investigated 52 ancient Egyptian mummies for signs of arterial atherosclerosis, a hardening of the arteries that leads to coronary artery disease. They found recognizable arteries in 44 mummies and an identifiable heart in 16. A marker of atherosclerosis was evident at a variety of sites in almost half the mummies scanned, prompting the investigators to note that the condition was common in this group of middle aged or older ancient Egyptians. The 20 mummies with definite atherosclerosis were aged 45 years on average, about 10 years older than those with intact vascular tissue but no apparent atherosclerosis.

“Overall, it was striking how much atherosclerosis we found,” said Thomas.

A CT scan indicated the princess, who died in her 40s, had atherosclerosis in two of her three main coronary arteries, leading to a diagnosis of coronary artery disease. But how could this “disease of modern life” affect a woman who probably ate healthy food, and during a time when lazy lifestyles were rare?

Thomas and co-principal investigator Adel Allam of Al Azhar University, Cairo, suggest three possibilities. First, there maybe still some unknown risk factor for cardiovascular disease, perhaps an as-yet unidentified genetic link. Second, an inflammatory response to the frequent parasitic infections common to ancient Egyptians might predispose to coronary disease, much as HIV patients with compromised immune systems seem also predisposed to early coronary disease.

Third, a dietary cause can’t be ruled out. As an aristocrat and daughter of Seqenenre Tao II, the last pharaoh of the 17th Dynasty, the princess’s diet was probably not that of the common Egyptian. She would have eaten more luxury foods such as meat, butter and cheese. Moreover, foods were preserved in salt, perhaps posing additional health risks.

The scientists are keen not to discount those heart disease risk factors we do know about. “Recent studies have shown that by not smoking, having a lower blood pressure and a lower cholesterol level, calcification of our arteries is delayed,” said Thompson. “On the other hand, from what we can tell from this study, humans are predisposed to atherosclerosis, so it behooves us to take the proper measures necessary to delay it as long as we can.”