Is Cancer a Mostly Modern Phenomenon? Maybe Not.

A new study has found that far more ancient Britons developed cancer than previously believed.

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Cancer was much more common in medieval Britain than previously estimated, according to the results of a study conducted by researchers at the University of Cambridge.

With risk factors that include smoking and exposure to the kinds of toxic chemical compounds that dwell in everything from food to paint to household cleaning products, cancer is often considered a quintessentially modern affliction. Approximately 40% of men and women in the United States will be diagnosed with cancer in their lifetime, according to the National Cancer Institute.

Until now, estimates of cancer incidence before the Industrial Revolution in England hovered around 1%. Historically, paleopathologists, as scholars of sickness and mortality in the ancient world are known, have theorized that infection, malnutrition and physical injury were the main causes of death at the time.

However, the new study casts doubt on the accuracy of this theory by indicating that the incidence was more like 9% to 14%. If that estimate is correct, it means that cancer was a major cause of death in that era, at least in this part of the world.

Led by paleopathologist Piers Mitchell, MD, and using modern cancer imaging technology, including X-rays and computed tomography (CT) scans, the researchers analyzed the bones of 143 preindustrial Britons. Their methodology differed from that of their predecessors, who could examine only the exterior of skeletal remains. This way, they were able to see cancer lesions that might otherwise have flown under the radar, coauthor Jenna M. Dittmar, PhD, said in a statement.

Most cancers that metastasize to the bones originate elsewhere in the body, such as the prostate, breasts or lungs. Furthermore, those that do make it to the bones colonize them from the inside out, meaning that their presence is not necessarily visually evident.

Mitchell, who divides his time between lecture halls and operating rooms, believes that these two factors are responsible for the perception of cancer as a relative rarity in the ancient world, according to National Geographic.

He also noted that his team detected the disease in bones regardless of individuals' socioeconomic status. "We had remains from poor people living inside town, we had the rich people living inside town, we had an Augustinian friary inside town and we had a hospital, so we had a real mixture of the different kind of subpopulations that you get in medieval life," he said, according to The Guardian.

The skeletons were buried in and around Cambridge and dated to between the 6th and 16th centuries. They were selected for analysis because they all possessed intact spines, pelvises and femurs, bones that are particularly fertile ground for tumor development.

By consulting Mitchell and practicing radiologist Alastair Littlewood, the researchers determined that five of the skeletons, or about 3%, showed definitive signs of cancer. However, they noted in the study, that the estimate was likely artificially low. Only one third to one half of cancers spread to the bone. In addition, CT scans are able to detect only 75% of bone metastases.

When the researchers took these factors into consideration, they estimated that the actual cancer incidence among the skeletons was between 9% and 14% rather than 1%. After all, ancient Britain was not free of carcinogens. People frequently consumed alcohol, breathed in the smoke produced by wood and coal fires and developed cellular mutations as they aged, according to National Geographic.

While cancer is still thought to be more common now than it was then, the new study suggests that the disease was nevertheless a major contributor to illness and death in medieval England. That suggestion is especially significant considering that life expectancy was much shorter at that time and cancer incidence increases significantly with age. According to Mitchell, "If you took away [staples of modern life such as] all pollution, all smoking, it will decrease cancer but it's still not going to make it disappear."

Dittmar believes that the results will also affect how academics view life in earlier centuries. "We now have to add cancer as one of the major classes of disease that afflicted medieval people," she said.

The new study was published in the journal Cancer.

For more on modern contributors to cancer risk, see "Is There Evidence That GMOs Can Cause Cancer?," "Living Near an Oil Refinery May Be a Cancer Risk Factor" and "Why Is a 4-Decade-Old Pesticide Back in the News? The Story of Glyphosate."

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