

1969: First FDA-approved total hip replacement in the U.S.

Dr. Mark B. Coventry, a pioneering Mayo Clinic orthopedic surgeon, led the team that performed the first successful total hip joint replacement in the United States on March 10, 1969.

Restoring pain-free movement

Amid the prosperity that followed World War II, many Americans lived longer and extended their active lifestyles. As a result, more patients developed hip joint disease and overuse disorders.

By the 1960s, the need for new methods to reduce pain and improve functional quality of life for patients was so widespread that specialists at advanced medical centers explored the first modern means of replacing hip joints. During the total hip procedure, the surgeon removes the damaged sections of hip joint and replaces diseased portions with an artificial joint.

At the time, there was no consensus among surgeons about the best way to replace a hip joint. Dr. Coventry visited Europe on several research trips and investigated various approaches. He was especially impressed by the work of Dr. John Charnley, a British surgeon who was knighted for his pioneering work in orthopedics. “It was amazing,” a colleague later recalled. “(Dr. Coventry) went to England and toured all the centers and came back with the one that would be the model for the future.”

At Mayo Clinic, Dr. Coventry initiated a total hip program and designed a trial to test both the implants and a new kind of bone cement called methyl methacrylate, which was developed in England. Because the bone cement was considered a drug under American law, the cement had to be approved by the U.S. Food and Drug Administration.

New era of joint replacement

Dr. Coventry and his colleagues also developed a sophisticated method to evaluate the effectiveness of this new procedure. The Mayo Clinic Total Hip Registry was established in 1969, providing the first ongoing, large-scale analysis of total hip replacements. Since its inception, the Total Hip Registry has been recognized as a vitally important resource to guide hip replacement surgery as well as research and education about the operation.

Dr. Coventry made many contributions to the field of hip joint replacement. His ideas led to the development of specialized surgical instruments and the prevention of blood clots following the procedure. Shortly before he retired in 1983, Dr. Coventry told a younger member of his team, “We are going to do things a little differently. Today I am experimenting with a new way to prep and drape a patient.” Amazed, his colleague recalled: “Here was a guy who wasn’t going to benefit at all from this experiment, but within a few months of his retirement he was still looking at the best way to prep and drape the total hip patients.”

Today, Mayo Clinic performs more than 1,500 total hip replacements a year. In the U.S., more than 300,000 total hip replacements are performed each year, according to the Agency for Healthcare Research and Quality.

Mayo Clinic's successful innovation of replacing impaired hips with implants helped usher in the modern era of joint replacement. Today, thanks to the pioneering efforts of Dr. Coventry and his team, total hip replacement is one of the most frequently performed orthopedic surgeries, improving the quality of life for millions of people worldwide. In summarizing his career, a colleague said, "Dr. Coventry particularly remembered that at Mayo he learned ... about treating patients as people, not merely as a condition that needed to be diagnosed."

SOURCES

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2. Morrey, B.J. 2010. Internally printed Department of Orthopedic Surgery History, "100 Years of Orthopedic Surgery at the Mayo Clinic 1910-2010." p. 37.
3. Nelson, C.W. 1996. "Dr. Mark B. Coventry and Total Hip Arthroplasty." Mayo Clinic Proceedings. Vol. 71:4; p. 328.
4. Orthopedics Today, January 2003. "Coventry was dedicated to broadening orthopedic knowledge and practice."