Obituary

Charles O. Townley, MD, 1916–2006

James W. Pritchett MD

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Charles O. Townley, MD

Charles Orleff Townley was born in Minneapolis on December 30, 1916 and died in Port Huron, Michigan on December 22, 2006. He was raised in the Midwest under humble circumstances and entered Capital University in Columbus, Ohio on a football scholarship. After graduating with a BA in Physical Education, he went to Ohio State University and finished medical school in 3 years. In 1944 he chose Henry Ford Hospital for his residency. After a year and a half at Ford, Captain Townley went to Tilton Army Hospital in Fort Dix, New Jersey where he served for a year.

In 1948 John Charnley was a visiting professor at Henry Ford Hospital. Townley met him at the airport, gave him a tour of Detroit, and introduced him to the orthopaedic

department. Charnley spoke on positive pressure arthrodesis and fracture management. Townley showed Charnley his first designs for a total knee prosthesis.

In 1950, Townley moved his family to Port Huron and entered practice. He retired in 2003 at age 86. He raised his seven children in Port Huron and was involved in local civic activities. He founded the BioPro Company (Biologically Oriented Prostheses) in 1987. He held several patents including one for a polyurethane polymer that now is under development. Working in conjunction with engineers at Alfred University in New York, Townley developed a durable ceramic powder in 1990 and BioPro became the only US vendor of ceramic prostheses.

Townley's career tells a nearly complete story of the development of joint replacement surgery. He did not wait for the development of either polyethylene or methylmethacrylate to perform joint replacement surgery. He used alternative cements and polymer. He lectured around the world and published numerous original papers from 1947 to 2004.

As a resident with Dr. Leslie Mitchell, Townley saw that cup arthroplasties often failed. He believed earlier cup prostheses did not allow sufficient excision of "at risk" portions of the femoral head and designed his own prosthesis in 1951, adding a stem for supplemental fixation. Townley began implanting this "fixed femoral cup" in 1952. In 1960 he added acetabular resurfacing with polyurethane, nylon, or metal and this became the first alternative to Charnley's earlier "double cup" total resurfacing arthroplasty. The TARA (Total Articular Replacement Arthroplasty) with its characteristic curved stem has been one of the most enduring of the hip resurfacing prostheses in its metal and ceramic versions.

Townley received much recognition for his work on the knee. Marshall Urist and Duncan McKeever sponsored

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J. W. Pritchett (✉)
Orthopedics International, 168 Lake WA Blvd. E, Seattle,
WA 98112, USA
e-mail: BoneRecon@aol.com

Townley's membership in the Association of Bone and Joint Surgeons in 1962. Townley was a founding member of the Knee Society and its President in 1988. His work on an "Anatomic Total Knee," which retained both cruciate ligaments, was performed entirely alone and without industry support in addition to his busy private practice. He used cadavers at Wayne State University in Detroit and plaster molds to formulate his designs.

At first, Townley replaced only the tibial surface of the knee because of concerns about a metal-on-metal articulation. He performed 170 hemiarthroplasties between 1953 and 1972. However, implant companies considered his designs too radical to sell, so Townley had them manufactured and sold them to patients himself, at cost, for \$75. At the 1972 AAOS meeting he introduced the Anatomic Total Knee. This was one of the most widely used prostheses worldwide in the 1970s and 1980s. Because it had a patellar component, it probably was the first tricompartmental knee prosthesis.

In 1960 Silas Braley from Midland, Michigan introduced Townley to silastic as a possible material for hand joint prostheses. Townley believed silastic would fragment and instead designed a vitallium prosthesis for the thumb basal joint and metatarsal phalangeal joint of the hallux. Both of these implants are in common use today.

Townley loved sports. He played golf, coached little league baseball, and attended many local sporting events as a team physician. His language was colorful and his meaning clear. He lived a sometimes difficult but simple life. He also was an environmentalist, lobbying the city of Port Huron to allow him to build a windmill to power the Townley Orthopedic Clinic.

He was generous toward everyone with his time, thoughts, and energy, and was fun to be around. He was not always the soul of discretion or blessed with diplomatic skills. He drove an electric car and was a philanthropist in Port Huron. He had simple tastes, was quite a story teller and an original thinker.