The Rod of orthopedist almost Olympian

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Abstract

Spinal surgery has ancient origins, dating back to the ancient Egyptians, although the results seem to be very poor. The real revolution came from the beginning of the twentieth century, in the United States.

In this article we retraces the entire history of the evolution of this type of surgery.

Key Words: Scoliosis, Harrington, Spinal Surgery, Medicine History.

Introduction

Spinal stabilization has been always one of the hardest surgical methods to be carried out. This therapeutic option has developed in the twentieth century as it was the century in which it was possible to dare in "open the back" of the patient, because the technology of that period allowed it. Many surgeons have tried to stabilize or correct deformities of the spine with various methods. The breakthrough was given by distracting bar of a boy in Kansas.
The pre-metallic era

Even at the time of the ancient Egyptians was practiced surgery of the spine, predominantly on the deformities that today classify as Pott's disease, unfortunately with poor results. In the early XX Fred Albee and Russell Hibbs, two orthopedic surgeons from New York City, took the autogenous bone graft to perform the arthrorisis of motor segments of the spine, all this in 1911.

Hibbs, on the other hand, did not use the tibial grafts, but invented a “fusion pen”. The Hibb technique represented the first documented example of flexible stabilization, using local autologous bone for reconstructive purposes. Hibbs and Albee's work on spinal stabilization by posterior way using autologous bone become the standard surgical procedure of that period.

The term "Fusion" due to this method to indicate the spinal stabilization was used until 2004 when the American Medical Association in its current terminology forced to use in publications the term "arthrodesis". In that period vertebral deformities were treated almost exclusively with nonoperative therapy and one of the biggest supporters was the German surgeon Boehler. The method (Fig.1) of Albee and Hibbs was used in the Mayo Clinic for standard surgery, for herniated discs and for post traumatic stabilization. Unfortunately it was seen that this arthrodesis gave episodes of pseudarthrosis and non-stabilization of approximately 68%, thus not proving a totally reliable method.

The Man of distracting bar

*Non si muore per scoliosi, ma per cuore polmonare*  
*Nobody die for scoliosis, but for pulmonary heart*

Ugo Del Torto

The reliability of the spinal stabilization through metal fixation devices is due to the genius of Paul Randall Harrington. Paul Randall Harrington was born September 27, 1911 and grew up and educated in Kansas City, where he graduated in 1930. After finishing high school he did not think of going to the College but changed idea when the University of Kansas offered him the scholarship to play on the basketball team. He won for three consecutive years with the basketball team of the University of Kansas the Big Eight for three years in a row and was also team captain.

His initial interest in the physical education field flourished in an interest on medicine.

He attended the University of Kansas School of Medicine and graduated in 1939, playing as a semi-professional basketball. Harrington began his life as a surgeon at Roper Hospital, Charleston, South Carolina, after which returned to St Luke's Hospital in Kansas City, where he specialized in Orthopedics in 1942, with Frank Dickson professors and Rex Dively. He enlisted in the US Army for economic needs and spirit of adventure from May 1942 to November 1945.

Harrington was a doctor of the 77th Evacuation Hospital in World War II, as head of the orthopedic service. The 77th Evacuation Hospital consisted largely of medical graduates at the University of Kansas. Harrington was present in various theaters of war including Africa and Europe, incorporated in the divisions under General Patton. This experience formed Harrington as traumatologist. After the war he moved to Texas paying his work as surgeon at the Jefferson Davis County Hospital in Houston. During the war the poliomyelitis was the disease that created many victims and invalids in the US. During the epidemic of poliomyelitis, Harrington worked with the Baylor College of Medicine in order to found Southwest Respiratory founation of the National Infantil Paralysis Association, the first organization for polio in the United States.

Harrington observed that patients suffering from polio developed a scoliosis rather serious that it was not possible to cure nor with physical therapy nor with other therapies then existing. Following this, Harrington began to think of a corrective surgery, to ward off the heart lung, the primary cause of death in patients with severe scoliosis. As early
methodically tried for these patients, the manual correction of the scoliotic deformity; surgically with the method of Aldee and Hibbs, without receiving big hits.

Harrington began using hooks and rods to stabilize the spine, collected successes, but the material used was not withstand the bars causing very often implant fractures. Two patients died with the old tools.

Harrington understanding the importance of this type of stabilization, he continued to develop it for all the years 40. At the beginning of the fifties invented the instruments that made him famous. Its bar made of stainless steel, to which were attached hooks that allowed the distraction of the scoliotic curve, allowed to straighten the curve in the best way in the frontal plane and on the sagittal and axial.

The surgery still provided the arthrosis with bone graft taken from the spinous processes of the vertebral bodies and the making of a bust pinstripe until engraftment of the arthrosis. Harrington invented instruments for his intervention very often the evening before surgery, based on the observation of previous patients.

Harrington modified his instrumentation several times and once satisfied with his instruments submitted it to stress tests at the Faculty of Engineering in Houston and at the University of Chicago for marketing. He presented his surgical technique at the Annual Meeting of the American Academy of Orthopaedic Surgeons in Chicago in 1958. In 1959 he signed with Zimmer the commercialization contract. The marketing of the Harrington instrumentation bumped the author to the headlines. Time Magazine reported: “Some ailments seem almost preferable to their cures. A case in point is scoliosis, an abnormal curvature of the spine that occurs in childhood. The treatment seems so punishing that parents cannot be persuaded to permit it even to save their children from permanent deformity. Last week Houston surgeon Paul Harrington, MD, was winning converts to a new and happier method…”

Harrington to publicize its methodology began to travel a lot and in 1960 developing the interest in sailing, so as to build a 54 foot aluminum catamaran. In 1966 he was a founder of Scoliosis Research Society, of which he was president from 1972 to 1973. He was also an orthopedic consultant to the Air Force and the US Army. Ten years after the death of Harrington, which took place in Houston on Nov. 29, 1980, approximately one million people had been operated with his method for a variety of spinal deformity. 1990 was also the year of abandonment of Harrington method, for the Cotrel’s method because the Harrington method was in the "Flatback syndrome" the main sequel not bearable for the patient.

**Essential Iconography:**

![Fig.1 Arthrosis according Adele and Hibbs.](image)
Fig. 2 Paul Harrington

Fig. 3 Vectors of scoliosis

Fig. 4 Vectors of strength of the correction according to Harrington
Fig. 5 RX in AP of Harrington operation

Fig. 6 RX in LL of Harrington operation for curved back of considerable degree

Fig. 7 Illustrative drawing of the Harrington method
Fig. 8 Instruments of the Harrington method produced by Zimmer

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