50 Years Ago in CORR

Technic of the Resection-Angulation Operation for Hip-Joint Disabilities

Henry Milch MD CORR;13:265–270

This month's symposium is devoted to papers presented at the annual meetings of The Hip Society. For the majority of patients over the age of 45–50, most surgeons recommend total hip arthroplasty (THA) for conditions that destroy the hip. THA was developed in the early 1960s by Sir John Charnley [2, 3]. By the late 1960s, a number of surgeons in Europe and those contributing to FDA trials for the required bone cement in the US were performing the operation in older patients. When the FDA approved bone cement for general use in the early 70s, THA became the standard of care, replacing a variety of procedures such as osteotomies, cup arthroplasty, hemiarthroplasty, fusion, and resection arthroplasty. The operation was and is one of the most successful elective operations in any field of surgery. However, before that time surgeons had to recommend one of the other sorts of operations, the outcomes of which were far less certain: they did not reliably relieve pain, range of motion was infrequently restored to normal (and of course obliterated with fusion), and while function often improved it was usually not normal. Further, many of these patients would continue to have deterioration of the hip and require further operations.

Among the many choices (there were many types of osteotomies, for example) was the resection-angulation

osteotomy advocated by Milch [12] in 1959, a year before Charnley first mentioned his arthroplasty. Milch recognized the ability of resection arthroplasty to relieve pain (to some extent if not fully) and to restore at least a reasonable range of motion, but the primary problem was instability. He noted, however, the success of the Shanz or Lorenz types of angulation osteotomy in achieving stability in children with congenital dislocation of the hip (now termed development dysplasia of the hip). Combining these two concepts, Milch proposed performing a resection arthroplasty

(excision of the femoral head and neck) to eliminate the pain, then performing an angulation osteotomy to provide stability (Fig. 4). (The simple resection arthroplasty he advocated should not be confused with the far more radical procedures proposed by Girdlestone for tuberculous [4] and pyogenic [5] infections of the hip.) Beginning in 1934 Milch used his approach in a two-stage procedure, performing the osteotomy first, then the resection [9], but later performed both procedures in one stage [10].

In the article we highlight this month, Milch described his technique

Fig. 4 The blade plate has been inserted at the base of the greater trochanter so that the angle is located precisely at the predetermined level of femoral osteotomy. After transection of the femoral shaft, the distal osteotomized fragment is fixed to the plate by screws of appropriate length. (Reprinted with permission from Milch H. Technic of the resection-angulation operation for hip-joint disabilities. *Clin Orthop Relat Res.* 1959;13:265–270.)

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in detail. He emphasized the need for preoperative planning and used tracings of the radiographs to estimate the proper osteotomy angle and the proper location of the resection. Such planning is similar to that used for osteotomies today, although they are far less frequently performed. At a time when many surgeons advocated rest postoperatively he emphasized the need for early passive and active motion, beginning on the second or third day, and used traction with the leg in a sling to achieve motion. Milch was ahead of his time on this account: even in the early days of THA, many patients were at bedrest in non-moving traction or suspension for many days to allow “healing.” By the 1980s postoperative bedrest was reduced to only a few days and by the 1990s many surgeons were advocating mobilization of patients on the day after surgery. Today, of course, THA has even been performed as an outpatient procedure and many if not most patients are now out of bed the same day of surgery.

Milch reported the results of his first 64 patients in 1955 [11]. Among those patients 67% obtained “almost complete relief of pain” and another 25% “marked improvement.” Restoration of range of motion was “satisfactory” in 53% with another 30% achieving an improved range of motion. Virtually all patients limped. Milch argued, “Some have considered the limp

which inevitably attends the performance of this operation a serious drawback. This would not seem to be a serious objection, since the patients all had a limp before the operation.” Many patients likely had no expectation of elimination of a limp. Although not well-documented for all patients, many used canes or crutches. Milch used no standardized reporting methods: that of Merle d’Aubigné had been reported in French in 1951 [1, 8] and was not well known to those in the US at the time, and those of Larson [7] and Harris [6] were described later in 1963 and 1969. However, his results were typical of those achieved with cup arthroplasty or hemiarthroplasty in those days. Fusion, of course, typically eliminated the pain, but eliminated all motion and often required long periods of immobilization in a cast depending upon the type of fusion and stability of any internal fixation. The THA of today remarkably relieves pain, restores motion, and provides high levels of function in the large majority of patients for many years or decades. It is only when we compare contemporary outcomes with those from only 50 years ago that we realize what advances have been made.

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