

SHOULDER ARTHROPLASTY RECORDS

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ABSTRACT

Objective: The study's objective is to evaluate the characteristics and problems of patients who underwent shoulder arthroplasties between July 2004 and November 2006. **Methodology:** During the period of the study, 145 shoulder arthroplasties were performed. A prospective protocol was used for every patient; demographic, clinical and surgical procedure data were collected. All gathered data were included in the data base. The patients were divided in three major groups: fractures, degenerative diseases and trauma sequels. Information obtained from the data base was correlated in order to determine patients' epidemiologic, injuries,

and surgical procedure profiles. **Results:** Of the 145 shoulder arthroplasties performed, 37% presented trauma sequels, 30% degenerative diseases, and 33% proximal humerus fracture. 12% of the cases required total arthroplasties and 88% partial arthroplasties. Five major complications were observed on early postoperative period. **Conclusion:** Shoulder arthroplasties have become a common procedure in orthopaedic practice. Surgical records are important in evidencing progressive evolution and in enabling future clinical outcomes evaluation.

Keywords – Shoulder; Arthroplasty; Medical records; Prospective studies

INTRODUCTION

According to Lugli, the French surgeon Péan performed the first replacement of the shoulder joint in 1893⁽¹⁾. From reports by Neer in the 1950s, shoulder arthroplasties evolved with increasing indications for it and better clinical outcomes due to an improved understanding of shoulder biomechanics, the evolution of prosthesis design and of the surgical technique⁽²⁾.

The improvement of clinical outcomes of arthroplasties associated with an aging population and an appreciation for the quality of life have made shoulder arthroplasty a more common procedure in orthopedic practice⁽³⁾.

Shoulder replacement arthroplasty has been shown to produce satisfactory results in several studies. Unfortunately, the results of most arthroplasties that have been performed are not available. This is largely due to most systems for evaluating the results requiring

great dedication from the professionals involved, besides being very costly for most surgeons who perform shoulder joint replacements, creating a disincentive for studies related to this surgical procedure⁽⁴⁾.

Surgical records provide information to the medical community regarding the epidemiology of surgical procedures, surgical techniques, implants and their results, and they are a useful tool in the evolution of orthopedic procedures⁽⁵⁾.

Thus, the objective of this paper is to analyze the data stored in the registry of shoulder arthroplasties performed by the Shoulder and Elbow Surgery Clinic (SCOC, Serviço de Cirurgia de Ombro e Cotovelo) of the National Institute of Traumatology and Orthopedics (INTO, Instituto Nacional de Traumatologia e Ortopedia) in order to document the epidemiological characteristics of patients undergoing this procedure, defining the clinical-surgical profile and technical

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variables related to this type of orthopedic surgery and to perform functional analysis of these patients in the future.

METHODS

In August 2004, a surgery registry of the shoulder arthroplasties performed by the Shoulder and Elbow Surgery Clinic (SCOC) of the National Institute of Traumatology and Orthopedics (INTO) was started.

Thereafter, all shoulder arthroplasties performed by SCOC at the Hospital have been documented following a specific protocol (Figure 1), completed by a trainee or a clinician at the time of patient admission and supplemented after the procedure. In addition to patient's personal data, the protocol includes data on the disease, preoperative functional assessment (all patients except for those with fractures of the proximal humerus), and information relating to the surgical procedure such as the surgical technique and the implant.

The records, completed weekly, are entered into a database (Microsoft Excel®), allowing immediate analysis of the data on procedures. Thus, we analyzed 145 shoulder arthroplasties performed in the period between August 2004 and November 2006 by the SCOC of the INTO, trying to identify the epidemiological information related to this procedure.

All shoulder arthroplasties performed at our clinic during this period were included in this analysis, excluding only resection arthroplasties.

The patients were divided into three groups according to diagnosis: degenerative joint disease, acute trauma, and traumatic sequelae. The acute trauma group included complex fractures of the proximal humerus with a time of evolution of less than six weeks. The diagnosis of traumatic sequelae was defined as any traumatic injury (post-traumatic osteonecrosis, fracture, fracture-dislocation, inveterate dislocation, pseudarthrosis, malunion) with a time of evolution equal to or greater than six weeks.

The fracture group was divided into subgroups according to etiology. The acute trauma group was divided into subgroups according to the Neer classification of fractures of the proximal humerus and according to the presence and direction of the associated dislocation⁽⁶⁾; traumatic sequelae were divided into subgroups according to the classification of Boileau et al.⁽⁷⁾ (Figure 2).

Description of Shoulder Arthroplasty Form.

Name: _____ Record: _____	
Age: _____ male () female () Surgery: ____/____/____	
Surgeon: _____ Shoulder () right () left	
Diagnosis: () Primary osteoarthritis () Secondary osteoarthritis () Rheumatoid arthritis () Degenerative arthropathy () Arthropathy after capsulorrhaphy () Avascular necrosis () Fracture sequela () Sequela of fracture-dislocation () Other _____	
Previous procedures in the joint in question? What? yes () no ()	
Impairment of other joints: What? yes () no ()	UCLA Total: _____
Global System: () FX () Advantage Other _____	
Humeral component: _____	Humeral cement mantle: yes () no ()
Glenoid component: _____	Type of glenoid: () Kelled () Pegged
Head: size _____ x _____	Centric () Eccentric ()
Biceps tenodesis: () yes () no	Cementation: () Humerus () Glenoid
Drain: () yes () no	
Problems/complications	
Date: ____/____/____	
Signature and stamp:	

Figure 1 – Shoulder arthroplasty form for acquiring data for the shoulder and elbow arthroplasty registry of the National Institute of Traumatology and Orthopedics (INTO).

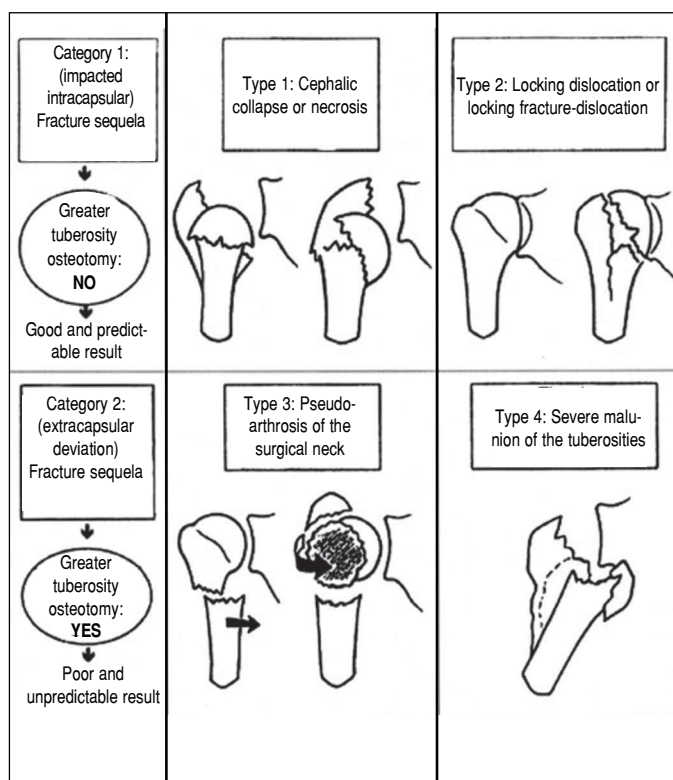


Figure 2 – Classification of Boileau and Trojani for post-traumatic sequelae of the shoulder joint⁽⁷⁾.

All surgical procedures used Global Total Shoulder System prostheses (De Puy Inc.[®], Warsaw, IN, USA).

Of the 145 shoulder arthroplasties performed, 106 patients were females (73%) and 39 males (27%). The mean age was 65 years (30-84 years). There were 17 (12%) total and 128 (88%) partial arthroplasties (Chart 1). All arthroplasties were performed by deltopectoral access. In the division by disease group, 54 (37%) patients had traumatic sequelae, 48 (33%) had acute trauma, and 43 (30%) had a diagnosis of a degenerative joint disease (Table 1).

Table 1 – Registry of shoulder and elbow arthroplasties

INTO arthroplasty registry	Number of patients	Total = 145
Degenerative diseases	43	30%
Fractures	48	33%
Traumatic sequelae	54	37%

Source: National Institute of Traumatology and Orthopedics – INTO

RESULTS

The group with traumatic sequelae had 54 patients (37%). Of these, the average age was 61 years (30-81 years), with 40 female patients (74%) and 14 male (26%). The main cause of traumatic sequelae according to the classification of Boileau et al.⁽⁷⁾ was a inveterate fracture-dislocation or inveterate dislocation in 22 cases (41%), followed by malunions in 11 cases (20%), as well as nonunion of the proximal humerus, also in 11 cases (20%), and finally necrosis in 10 cases (19%) (Chart 2). The average time between injury and surgery was 23 months (2-180

months). The preoperative UCLA functional score of this group was eight points. In this group, 44 were partial arthroplasties (81%) and 10 were total (19%) (Chart 3). All glenoid components were cemented. The humeral components were cemented in 41 patients (76%) and were not cemented in 13 (24%). Two patients with nonunion of the proximal humerus with a large amount of metaphysical-diaphyseal bone loss underwent homologous bone grafting, one with a structural cortical ruler-type graft and the other with a cancellous bone graft, both from cadaver donors, from the Musculoskeletal Tissue Bank of the INTO. The eccentric humeral head was used in eight cases (15%).

There were 43 patients (30%) in the degenerative diseases group with a mean age of 64 years (26-88 years), 30 of which were females (70%) and 13 males (30%). The most common diagnosis was primary osteoarthritis in 29 patients (67%). Other diagnoses were six cases of rheumatoid arthritis (14%), five cases of rotator cuff arthropathy (11%), two cases of post-capsuloplasty osteoarthritis and one case of ankylosing spondylitis (Chart 4). Of that group, 14 (32%) patients had undergone previous arthroplasty procedures in some other joint, of which six (14%) cases were on the contralateral shoulder, five patients had prior knee arthroplasty (12%), two had hip joint replacement (4%), and one patient had knee and shoulder arthroplasty (2%). The preoperative UCLA functional score of this group of patients was 10 points. Thirty-six partial (83%) and seven total (16%) arthroplasties were performed in this group (Chart 5). All glenoid components were cemented. In this group, three young patients diagnosed with primary osteoarthritis with degeneration of the articular surface of the glenoid underwent biological coating of the glenoid.

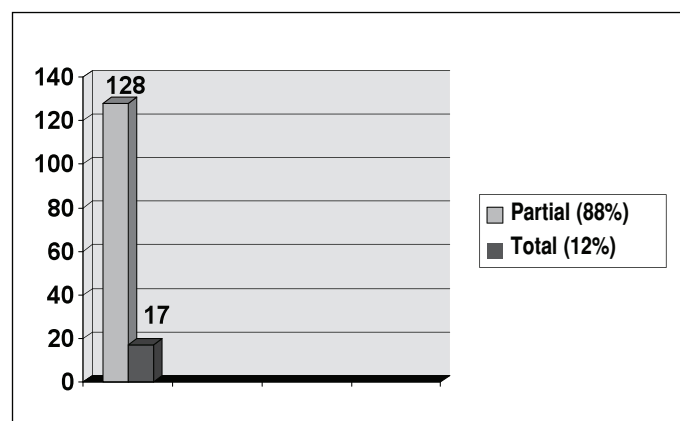


Chart 1 – Number of partial and total arthroplasties in the period.

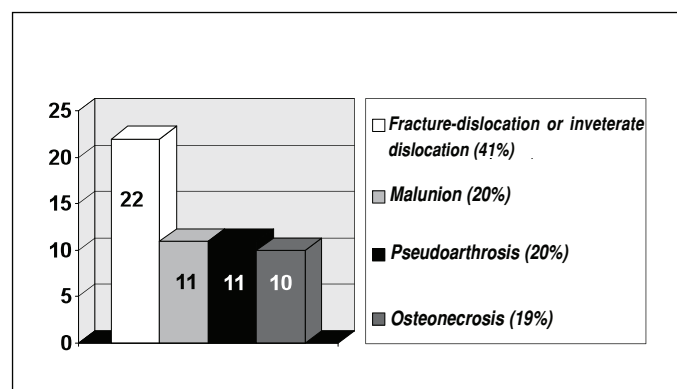


Chart 2 – Percentage of patients in each group according to the characteristics of the initial trauma.

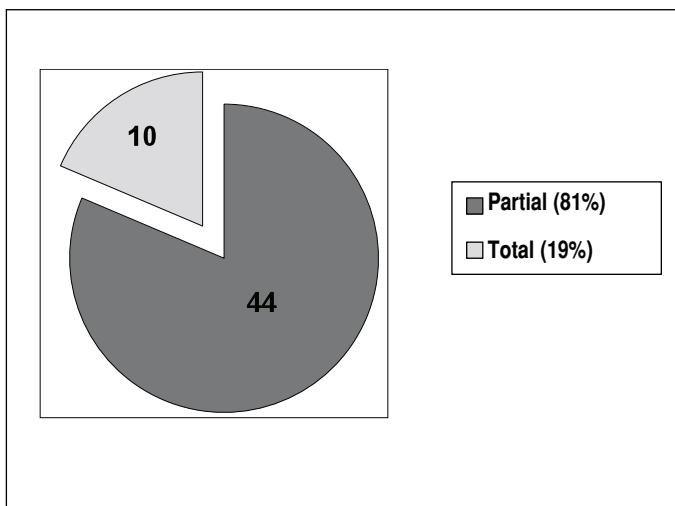


Chart 3 – 81% partial and 19% total arthroplasties were performed in the post-traumatic sequelae group.

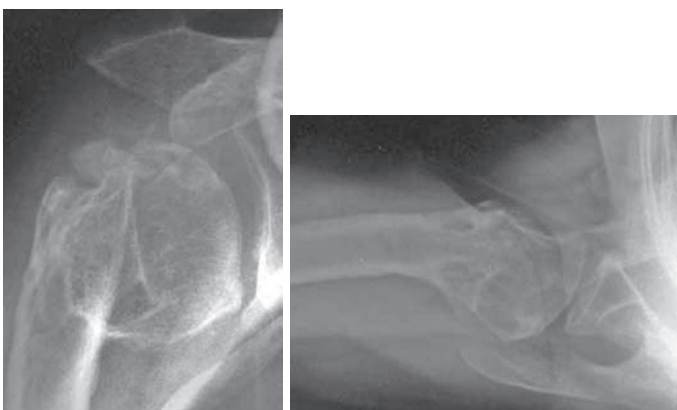


Figure 3 – AP and lateral radiographs illustrating post-traumatic sequelae to the humeral head and tuberosity malunion.

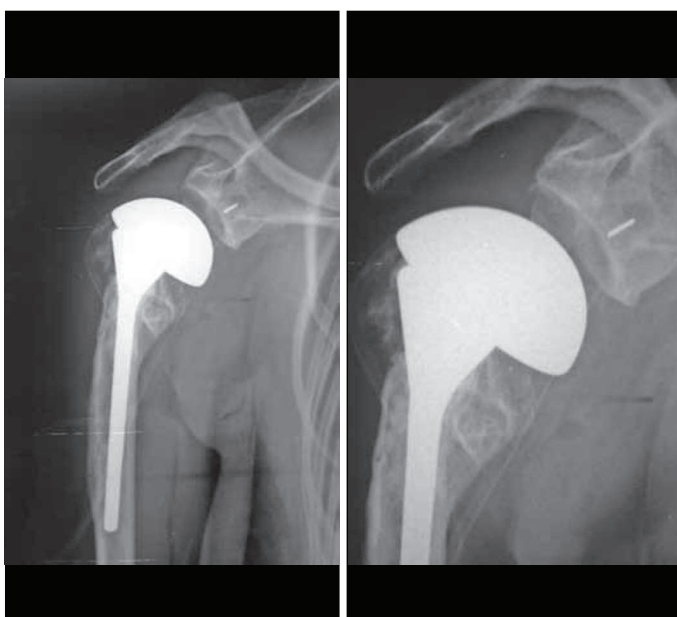


Figure 4 – AP and lateral radiographs illustrating total arthroplasty performed without osteotomy of the greater and lesser tubercles.

Two patients underwent hemiarthroplasty associated with homologous biologic interposition of the glenoid articular surface with a lateral meniscus graft from cadaver donors received from the Musculoskeletal Tissue Bank of the INTO, and one patient underwent biologic interposition with an autologous biological graft of the anterior capsule removed during the deltopectoral access. The humeral component was not cemented in 31 patients (72%) and cemented in 12 (28%). An eccentric head was used in 10 cases (23%).

Finally, the acute trauma group had 48 patients (33%) with a mean age of 70 years, with 36 females (75%) and 12 males (25%). The right side was affected in 27 patients (56%) and the left in 21 (43%). The mean interval to surgery was 20 days. Using the Neer classification, 27 patients had four-part fractures (56%), 18 had three-part fractures (37%), two had two-part fractures of the anatomical neck (4%), and one patient (2%) had posterior dislocation with four weeks of evolution that was irreducible in closed surgery. In the latter case, a defect in the humeral head greater than 30% of its diameter was measured through imaging, and replacement arthroplasty was chosen instead of salvage (Chart 6). In this group of 48 patients, 19 had dislocation associated with frac-

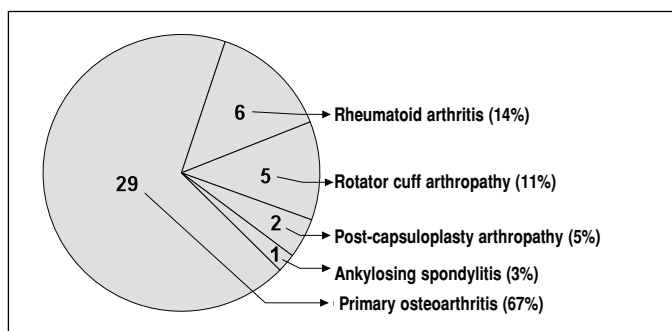


Chart 4 – Percentage of patients in the degenerative diseases group according to the etiology.

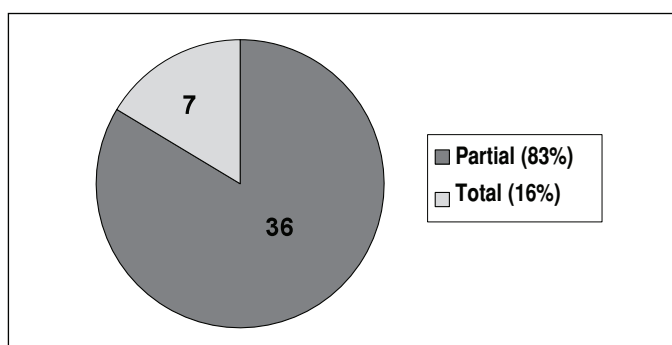


Chart 5 – Percentage of patients in the degenerative diseases group who underwent partial or total arthroplasty.

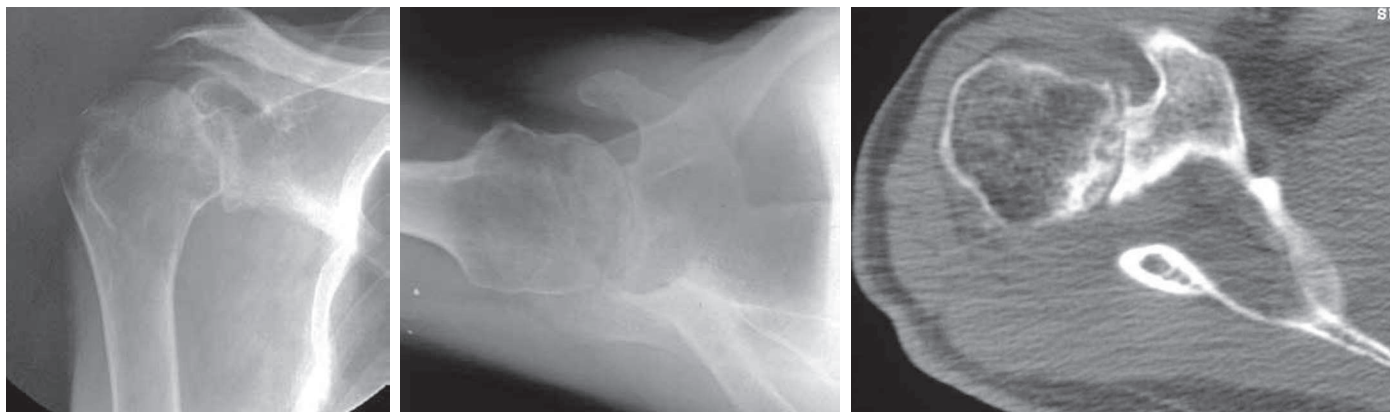


Figure 5 – AP and lateral radiographs and computed tomography illustrating osteoarthritis of the shoulder joint.

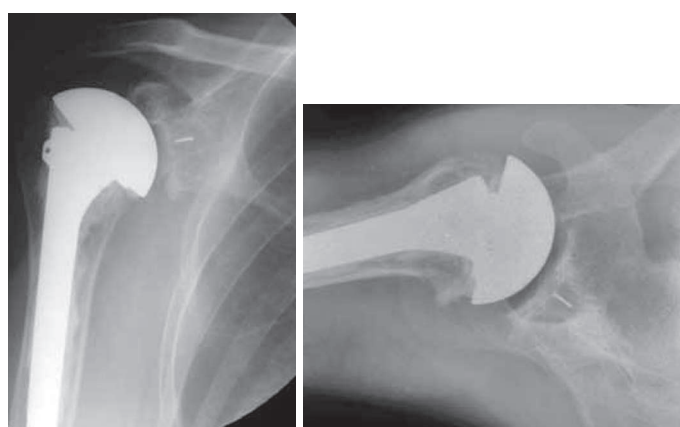


Figure 6 – AP and lateral radiographs illustrating total arthroplasty.

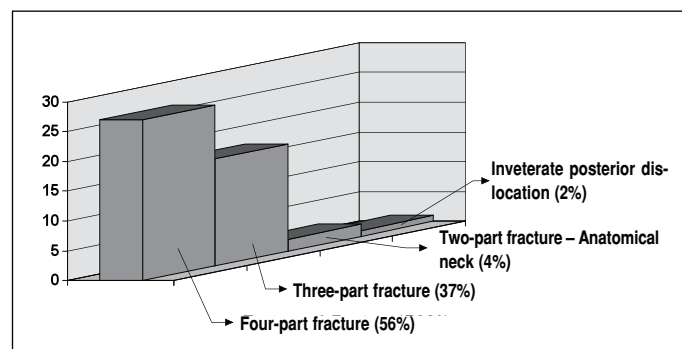


Chart 6 – Percentage of patients in the acute traumatic injury group according to the characteristics of trauma.

ture (39.5%), five of which were posterior and 14 anterior. As for associated injuries, one patient had brachial plexus neuropraxia with spontaneous complete resolution after three months of the initial trauma, after being treated only with occupational therapy, and one patient had an ipsilateral femoral neck fracture treated surgically with hemiarthroplasty in a first surgical procedure in the trauma surgery clinic at the same institution. All arthroplasties were partial, 41

(85%) of humeral components were cemented. An eccentric humeral head was used in 14 cases (29%).

The recent complications that occurred were an injury to the axillary artery during surgery in a case of anterior inveterate fracture-dislocation, two cases of instability, one anterior and one posterior; cases of traumatic sequelae included urinary sepsis in a type II diabetic patient without apparently compromising the implant, and the death of an elderly patient with a fracture as a result of clinical postoperative complications (Chart 7).

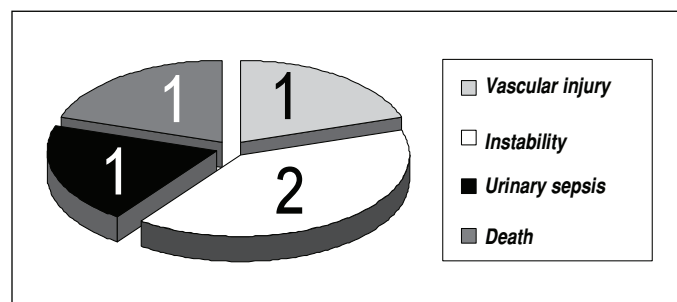


Chart 7 – Early complications occurring in the group that was evaluated.

DISCUSSION

Arthroplasty of the shoulder, over the years, has become a commonly performed procedure in orthopedic practice^(3,8).

During all these years, only 5% of the total shoulder arthroplasties performed in the world had their results published, mostly in big cities. Thus, 95% of the procedures were performed without any scientific documentation. As a result, the epidemiological characteristics and results of shoulder arthroplasty are mischaracterized in the specialized literature compared with those of other joints⁽⁴⁾.

Hasan et al.⁽⁹⁾ studied the distribution of shoulder arthroplasty among surgeons. They observed that the majority of shoulder arthroplasties in the United States are performed by surgeons who perform few similar procedures each year. However, most of the results in the literature stem from the practice of experienced surgeons, so it is impossible to know the true results of shoulder arthroplasty in its primary context, that is, the orthopedic practice in the community, outside of major centers⁽¹⁰⁻¹²⁾.

Vitale et al.⁽¹⁰⁾ reported that there was no correlation between the number of shoulder specialists and the volume of shoulder surgeries in a given geographical area. In addition, reported that it is not possible to determine the proportion of surgical procedures on the shoulder performed by professionals actually trained for such procedures. Lyman et al.⁽¹¹⁾ stated that the best results of shoulder arthroplasty are associated with higher surgical volume. Hammond et al.⁽¹²⁾ confirmed these data and concluded that surgeons who perform many shoulder arthroplasties annually have better results and fewer complications than surgeons with a low annual number of procedures.

From this information, we created a project to develop our surgical registry of shoulder arthroplasties, and to continuously document epidemiological data about our patients and surgical techniques, to allow for future evaluation of clinical outcomes related to this procedure. Authors have documented that surgical records are the ideal format to define the epidemiological characteristics of a particular population subjected to a particular surgical procedure and, from there, develop the relevant functional assessments, indicating the results, incidence of complications, and revisions in order to identify predictors of poor results and, thus, allow for the improvement of surgical techniques and implants^(3,5,8).

Although our sample is substantial (145 patients from 18 months), we have no means by which to compare our volume of indications for surgery to the national average, since in Brazil there is no national registry related to the number of shoulder joint replacements performed annually, and the number of publications regarding shoulder arthroplasty is scarce in our country. In a review of publications on the topic in the Brazilian Journal of Orthopaedics (RBO), only six articles were found related to the subject⁽¹³⁻¹⁸⁾. Having compared our data with a series of cases of large international arthroplasty centers, we can say that our numbers are within the average of shoulder

joint replacements in the published specialized literature^(3,8,19). However, when comparing the incidence of arthroplastic shoulder replacements with other joints, we can say that the incidence of shoulder arthroplasties worldwide is still vastly inferior to that of knee and hip arthroplasties⁽²⁰⁾. This difference can be explained by the fact that degenerative diseases of the shoulder are better tolerated by patients, who adapt their activities of daily living to the functional limitations of the upper limb, and because diseases that affect the shoulder occur less frequently than those that affect the hip or knee. Shoulder arthroplasty is a technically difficult surgical procedure when compared with other arthroplasties, and thus is not indicated for patients with the frequency of other joint replacements⁽⁴⁾.

In our sample there was a predominance of hemiarthroplasties (128 patients – 88%) compared to total arthroplasties (17 patients – 11.7%) in the general context and in all groups and subgroups. Comparing our figures with those of the two registries of shoulder arthroplasties published so far in the orthopedic literature, it is apparent that our results are in agreement with the Scottish registry⁽¹¹⁾ and are the opposite of data cited by Santos et al.⁽¹³⁾ concerning the registry at the Mayo Clinic. There are few randomized trials comparing total arthroplasty with hemiarthroplasties, yet in major studies on this subject there is currently a preference for total arthroplasty, which has constantly been debated in the literature with well-structured arguments on both sides⁽²¹⁻²²⁾. This fact probably relates to the technical evolution in glenoid replacements and the experience of surgeons, who are better able to perform this type of procedure nowadays, which would increase the level of satisfaction with the technique. This result contradicts our sample, in which hemiarthroplasties predominated, for our indications followed restrictive parameters regarding the replacement of the glenoid, since it is a step with a high degree of technical difficulty, in which failure may have a disastrous functional outcome for the patient. The patients we operated often had very advanced lesions with extensive ruptures of the rotator cuff and thus no indication for replacement arthroplasty of the surface of the glenoid. Nevertheless, we must admit that with our technical progress in carrying out this procedure, we have gradually increased the number of indications for glenoid replacement.

Although we have performed few glenoid component replacements, we do not underestimate the

value of small joint injuries of that surface. In our practice, we have used the microfracture technique for small injuries of the cartilage. In young patients with extensive cases, we sometimes perform biologic interposition using lateral meniscus transplants acquired from the Musculoskeletal Tissue Bank of the INTO, or a fragment of the anterior capsule obtained from the patient during the deltopectoral access, separated from the subscapularis tendon, or we perform only the ream and run procedure, trying to correct the version and rectify the glenoid articular surface, avoiding placement of the glenoid component with its risk of early release in young and active individuals⁽²³⁾.

Several case series in the literature have documented degenerative diseases as the main etiological indication of shoulder arthroplasties^(3,8,19). In their report of shoulder arthroplasty at the Mayo Clinic, Adams et al.⁽¹⁹⁾ presented the etiological indications for shoulder arthroplasty: 57% of cases were diagnosed with primary degenerative disease, 13% of patients with rheumatoid arthritis, 25% with acute trauma of the proximal humerus, and 5% with musculoskeletal tumors. Sharmae and Dreghorn⁽⁸⁾, in the Scottish registry, described rheumatoid arthritis as the most frequent diagnosis, followed by acute trauma, osteoarthritis, and osteonecrosis. In our sample, we identified the most frequent diagnoses: traumatic sequelae (54 patients – 37%), acute traumatic injuries (fractures) (48 patients – 33%), and degenerative diseases (43 patients – 30%). These data are likely to have a direct relationship with the characteristics of our health care institution, the quaternary reference of the Sistema Único de Saúde (SUS, Brazilian Health System) for high-complexity procedures in Orthopedics and Traumatology. This difference in clinical diagnoses in the indications of replacement arthroplasty of the shoulder is possibly also linked with the genetic profile and habits of the population and with the geographic area. However, factors that account for this difference have not been confirmed in the literature.

Undoubtedly, the high incidence of traumatic sequelae of the proximal humerus in our sample is a very important fact, but there is no comparative data in the global orthopedic literature with economic and social repercussions in an emerging country like Brazil. The large number of these complex lesions is the result of neglected or sometimes unsuitable treatments for acute traumatic injuries of the proximal humerus. This demonstrates, in part, the bankrupt state in which

we find the public health system in our country, especially in our state, where the low income population has no access to quality primary orthopedic care, which allows for adequate functional recovery and return to previous work activities, creating a huge social and economic burden to the country. In general, these individuals are economically active, with an average age lower than the patients who commonly undergo arthroplasty, and since they cannot get adequate primary orthopedic care for their primary traumatic injury, they have high complexity sequelae with a high degree of functional disability in the upper limb. The only orthopedic solution is shoulder joint replacement, which may eventually require surgical revisions due to the inevitable wear of the prosthetic components. We believe that this social tragedy can be avoided through investments in primary care of the trauma, both in human resources and technology.

Our incidence of arthroplasties in acute traumatic injuries of the proximal humerus lies within the average of literature. Today, in this context, the indications of shoulder arthroplasties are well defined and the results show great variation among surgeons because of the high technical complexity of the reconstruction of the shoulder, progressing with an enormous number of variables, which are a challenge for even the most experienced surgeons⁽²⁴⁾.

Our incidence of patients with primary osteoarthritis of the shoulder is slightly lower than the world average; we believe that this fact is due to the good tolerance patients show to the functional impairment of the upper limbs in the daily habits of our society; therefore, many patients avoid a surgical procedure like this. Our sample of patients with rheumatoid arthritis goes against the global trend⁽⁸⁾, perhaps this occurred because there is a low rate of referral of cases with this diagnosis to our hospital, either because of ignorance of the clinical assistant regarding this therapeutic tool or because sometimes the rheumatoid patient prefers to undergo lower limb joint replacements, while better tolerating the degenerative limitations in the upper limb.

Another relevant factor in our group of patients is the low incidence of rotator cuff arthropathy. The restriction in indicating hemiarthroplasty in this group of patients is based on the unsatisfactory functional results presented in the main global studies on this topic, and due to the emergence of new prosthetic designs such as the CTA head⁽²⁵⁾ and the reverse pros-

thesis⁽²⁶⁾, which today are the most commonly used implants for joint replacement of the shoulder with a clear indication in this group of patients, providing functional results compared with those of conventional hemiarthroplasties.

In the shoulder arthroplasty registries published in the orthopedic literature, the average age of patients undergoing this procedure was 65 years in the Scottish registry⁽⁸⁾ and 71 years in the registry at the Mayo Clinic, according to Santos et al.⁽¹³⁾ In our study, the average age of 154 patients undergoing shoulder arthroplasty was 65 years (30-84 years). Analyzing the average age by group, we found that the average age in the traumatic sequelae group was 61 years (30-81 years), which was lower than the group of patients with degenerative disease, which was 64 years (26-88 years), and the group of patients with acute trauma, which was 70 years. We believe that these data corroborate the need for adequate primary treatment of traumatic lesions of the proximal humerus, since this injury affects young patients who are likely candidates for future surgical revision. Primary shoulder arthroplasty in patients with traumatic sequelae is considered a technical challenge for most experienced surgeons; revision arthroplasty in these patients will be an even greater challenge⁽⁷⁾.

In a total of 154 shoulder arthroplasties in our experience, 94 humeral components were cemented (61%) and 51 humeral components were not (39%). When divided by groups, 41 humeral components were cemented (76%) in 54 patients with trauma sequelae. Of the 44 patients in the degenerative diseases group, only 12 humeral components were cemented (28%). And in the 48 patients of the acute trauma group, 41 humeral components were cemented (85%). Our criteria for cementing the component was subjective, based on the humeral bone quality. When the surgeon judged the patient's humerus to have a thin cortex and poor quality cancellous bone, he opted for the cementation of the humeral component. Another criterion used was the patient's age, avoiding cementing humeral components in young people due to the high possibility of these patients undergoing surgical revisions, where the presence of cemented components would make the procedure technically difficult, increasing the morbidity. Wirth et al.⁽²⁷⁾ published a series of 58 shoulder arthroplasties using cementless humeral components in combination with an autologous bone graft from the humeral head, where there

was no loosening in five years of follow-up. They concluded that an uncemented humeral component in combination with an autologous impacted bone graft is a safe option. We did not use impacted bone grafts in the uncemented humeral components in our sample, but we believe this is one more technical tool available for shoulder joint replacement. Rahme et al.⁽²⁸⁾ compared cemented and uncemented humeral components in patients with rheumatoid arthritis, who are known to have poor bone quality, and found a similar incidence of loosening. We believe that there is currently a preference for cementless humeral components in the literature. Although in our practice we prefer cemented components, we will be critically evaluating our recommendation in order to change our behavior in the next series.

Like other joint replacements, shoulder arthroplasty is associated with numerous early and late complications, such as loosening of the glenoid component, instability, periprosthetic fracture, rotator cuff injury, infection, neurovascular injury, and deltoid dysfunction. In the orthopedic literature, the incidence of complications associated with shoulder arthroplasty has a high rate of variation, from 0 to 62% with an average of 14 to 16%. In fact, the exact incidence of complications related to shoulder arthroplasty is not known, due to the fact that most published case series using this approach have not conducted sufficient follow-up. Wirth et al.⁽²⁹⁾ state that to determine the actual incidence of complications related to shoulder arthroplasty, a minimum medium-term (5-10 years) or long-term follow-up is needed. Chin et al.⁽³⁰⁾ reported a complication rate of 12% in 431 shoulder arthroplasties performed consecutively between 1990 and 2000, with a rate of 3.9% of revisions related to these complications. The most frequent complications were ruptures of the rotator cuff, instability and perioperative fractures of the humerus. In our series, there were early postoperative complications in five cases: three related to the procedure (an arterial injury and two instabilities) and two clinical complications (one urinary tract infection and one death). We believe that eventually, through the evaluation of our results, our incidence of complications will increase due to late complications related to mechanical and septic failure of the implant.

Shoulder arthroplasty is a technically demanding procedure that has been undergoing significant evolution and innovation in recent years; however, there is little scientific documentation of this in the literature.

Surgical records are important in defining the epidemiology of joint replacements, providing data about the results, and identifying the risk factors for poor results.

We thus began our surgical registry in order to document our experience with shoulder arthroplasty. The epidemiological analysis allowed us to identify the characteristics of patients, surgical procedures, and the immediate complications of shoulder arthroplasties performed in a hospital of high complexity.

Our results demonstrate a high prevalence of young patients with traumatic sequelae of the proximal humerus. This is alarming because it indicates that we are performing shoulder joint replacements in patients younger than ideal and therefore many arthroplasty revisions may be necessary in the future, surgeries that are more complex and challenging than primary arthroplasties, with less satisfactory results. In addition,

we highlight the high incidence of hemiarthroplasties compared with total arthroplasties in our practice, a fact that stands in contrast to large series of shoulder arthroplasties that have been published.

Our shoulder arthroplasty registry is the initial step for us to perform functional assessments and document our findings, and thus determine the efficacy of this procedure, the incidence of complications, and the need for revisions.

CONCLUSION

Shoulder arthroplasty has become a common procedure in orthopedic practice. Surgical registries are important to demonstrate the progressive evolution and to allow for the evaluation of clinical outcomes in the future.

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