



## Original article

# Rotator cuff injuries and factors associated with reoperation<sup>☆</sup>



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## ABSTRACT

**Objective:** To evaluate the prevalence of rotator cuff tears and describe the profile of reoperated patients, causes of repeated tendon tears, tear evolution and range of times between surgical procedures.

**Method:** This was a cross-sectional study involving 604 surgical procedures performed at two regional referral hospitals between January 2006 and December 2012. After approval by the ethics committee, data describing the patients' epidemiological profile were gathered at a single time, using Cofield's classification to measure the extent of the tears, all of which underwent arthroscopic surgery. The data were entered into Epi Info 3.5.3 and were analyzed using SPSS version 18.0.

**Results:** Among the 604 surgical procedures, females were affected in more cases (351; 58.1%). When the dominant limb was the right limb, it was affected in 90% of the cases ( $p < 0.05$ ). The supraspinatus tendon was affected in 574 cases (95%) and the tears were of medium size in 300 cases (49.7%). Eighteen reoperations were performed (2.98%) and the upper right limb was the most affected (66.6%). The cause was non-traumatic in 12 patients. The repeated tears were mostly smaller (44%), and the length of time between the two surgical procedures ranged from 6 to 298 weeks.

**Conclusion:** Female gender, smaller extent in the second procedure and non-traumatic cause were found in most of the cases analyzed.

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## Lesões do manguito rotador e fatores associados à reoperação

### R E S U M O

#### Palavras-chave:

Lesão do manguito rotador

Ombro

Reoperação

**Objetivo:** Avaliar a prevalência de LMR, descrever o perfil do paciente reoperado, a causa da ruptura tendínea, a evolução da lesão e a variação de tempo entre os procedimentos cirúrgicos.

**Métodos:** Estudo com delineamento transversal, que envolveu 604 eventos cirúrgicos feitos entre janeiro de 2006 e dezembro de 2012, em dois hospitais de referência regional. Após aprovação pelo comitê de ética, os dados foram coletados em um único momento, descreveu-se o perfil epidemiológico dos pacientes e usou-se a classificação de Cofield para mensurar a extensão das lesões, as quais foram operadas por via artroscópica em todos os pacientes. Os dados foram digitados no programa Epiinfo versão 3.5.3®, e analisados no SPSS versão 18.0®.

**Resultados:** Entre os 604 procedimentos, o sexo feminino esteve predominantemente acometido com 351 (58,1%) e quando o membro dominante foi o direito ele esteve acometido em 90% dos casos ( $p < 0,05$ ). O tendão supraespinhal foi acometido em 574 (95%) casos e as lesões foram de tamanho médio em 300 (49,7%) casos. Foram 18 (2,98%) reoperações e o membro superior direito foi o mais acometido (66,6%), com causa não traumática em 12 pacientes. As relesões foram em sua maioria menores (44%), com o tempo entre os dois procedimentos cirúrgicos que variou entre seis e 298 semanas.

**Conclusão:** Sexo feminino, extensão menor no segundo procedimento e causa não traumática foram encontrados na maior parte dos casos analisados.

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## Introduction

Rotator cuff injuries (RCI) are common in orthopedic practice, and account for nearly 70% of the events of shoulder pain.<sup>1</sup> Its complete tear is associated to traumatic situations in young individuals, whereas it has the tendon fragility as an etiology in old patients, with repetitive micro traumas associated with acromial anatomy and poor tendon vascularization.<sup>2-4</sup>

Depending on the type of injury, as in patients with signs of subacromial impingement, the clinical treatment with physical therapy and lifestyle changes can postpone the functional impairment of the rotator cuff. However, in individuals who suffered complete rupture of a cuff tendon, clinical treatment does not achieve good results and the surgical repair is indicated.<sup>5</sup>

The worst complication that a patient operated for RCI can develop is the re-rupture of the tendon, which needs new surgical intervention.

There are few studies that address reoperations of the rotator cuff. Nevertheless, data available in the literature demonstrate that the obtained results are inferior to the results of the primary procedure, with improvement of the pain, but no significant recovery of cuff function.

This study aimed to evidence the prevalence of rotator cuff reoperations in a established period and the associated factors that led to the failure of the primary surgery.

## Materials and methods

This was an observational, retrospective, cross-sectional study, using descriptive and analytical statistics, conducted with patients who underwent surgery due to RCI between January 1, 2006 and December 31, 2012. In the reported period, 604 surgeries for the correction of symptomatic RCI were conducted, all arthroscopically, by the same specialist surgeon, accompanied by the same orthopedic team. Of these, 36 surgeries were conducted in a philanthropic hospital and 568 in a private hospital. The inclusion criteria were patients undergoing shoulder surgery due to RCI in the aforementioned period and institutions. Exclusion criteria were patients with incomplete medical records and those who were re-operated by the team, but underwent their first surgery in another hospital.

Data was collected through the assessment of medical records and filling of a protocol prepared by the researchers. The Cofield classification was used to categorize the extent of the injuries as: small (<1 cm), medium (1-3 cm), large (3-5 cm), massive (>5 cm), or irreparable (>5 cm, involving two or more tendons of the rotator cuff, which cannot be repaired without excessive tension after the release of intra- and extra-articular adhesions, of the coracohumeral ligament and the rotator interval, and the incision of the capsule). The period from first symptoms to the first surgery and the period until reoperation were recorded in weeks and months, respectively. The reasons for intervention were categorized as traumatic and

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