

CHARACTERISTICS OF PATIENTS WITH ROTATOR CUFF SYNDROME AT DR. MOHAMMAD HOESIN PALEMBANG GENERAL HOSPITAL

Fitry Dwi Asmeliana ¹, Ramadhan Ananditia Putra ^{2*}, Indri Seta Septadina ³

¹Medical Study Program, Faculty of Medicine, Universitas Sriwijaya, Palembang, Indonesia

²Department of Orthopaedics and Traumatology, Faculty of Medicine, Universitas Sriwijaya, Palembang, Indonesia

³ Department of Anatomy, Faculty of Medicine, Universitas Sriwijaya, Palembang, Indonesia

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Corresponding author :

Ramadhan Ananditia Putra
Department of
Orthopaedics and
Traumatology, Faculty of
Medicine, Universitas
Sriwijaya, Palembang,
Indonesia

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ramadhan_spot@yahoo.com

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ABSTRAK

Rotator cuff syndrome (RCS) merupakan kondisi akibat cedera, penyakit, atau degenerasi pada otot rotator cuff yang dapat menyebabkan nyeri dan gangguan fungsi bahu. Penelitian ini bertujuan mengetahui karakteristik pasien RCS di RSUP Dr. Mohammad Hoesin Palembang. Penelitian deskriptif dengan desain cross-sectional menggunakan data sekunder rekam medis pasien RCS periode Januari 2021–Juni 2024 dengan teknik total sampling. Dari 61 pasien, RCS paling banyak ditemukan pada usia 45–59 tahun (54,1%), perempuan (63,9%), dan disebabkan trauma aktivitas sehari-hari (42,6%). Mayoritas pasien tidak bekerja (55,7%), dengan jenis cedera terbanyak berupa supraspinatus impingement atau tendinitis (36,1%). Sebagian besar tidak memiliki riwayat penyakit (32,8%) maupun cedera sebelumnya (72,1%), serta mendapat tatalaksana nonoperatif (91,8%). RCS paling banyak ditemukan pada perempuan usia 45–59 tahun, terutama akibat trauma aktivitas sehari-hari, dengan supraspinatus impingement atau tendinitis sebagai jenis cedera terbanyak dan tatalaksana nonoperatif sebagai penanganan utama.

ABSTRACT

Characteristics Of Patients With Rotator Cuff Syndrome At Dr. Mohammad Hoesin Palembang General Hospital. Rotator cuff syndrome (RCS) is a condition caused by injury, disease, or degeneration of the rotator cuff muscles, resulting in shoulder pain and functional impairment. This study aimed to determine the characteristics of RCS patients at Dr. Mohammad Hoesin General Hospital, Palembang. A descriptive study with a cross-sectional design was conducted using secondary data from medical records of RCS patients from January 2021 to June 2024, with total sampling. Among 61 patients, RCS was most common in those aged 45–59 years (54.1%), females (63.9%), and caused by trauma during daily activities (42.6%). Most patients were unemployed (55.7%), with supraspinatus impingement or tendinitis being the most common injury type (36.1%). Most patients had no history of previous illness (32.8%) or injury (72.1%) and received non-operative treatment (91.8%). RCS was predominantly found in females aged 45–59 years, mainly associated with trauma during daily activities, with supraspinatus impingement or tendinitis as the most common injury and non-operative treatment as the primary management.

INTRODUCTION

The rotator cuff is a group of shoulder muscles assisting in various movements while maintaining glenohumeral joint stability. It consists of the *M. Subscapularis*, *M. Infraspinatus*, *M. Teres minor*, and *M. Supraspinatus muscles*.¹ Injuries to the rotator cuff are a major cause of shoulder pain. Rotator cuff syndrome (RCS) is among the most common musculoskeletal complaints causing shoulder pain.² Studies report shoulder pain incidence rates ranging from 7.7 to 62 per 1,000 people annually.³ In the UK, 30%-70% of shoulder pain cases are attributed to RCS.⁴⁻⁶ RCS includes conditions such as supraspinatus impingement or tendinitis, rotator cuff tears, acute calcific tendinitis, and biceps tendinitis or rupture.⁶

Supraspinatus impingement is characterized by shoulder pain due to structural narrowing of the subacromial space, with a prevalence of 7%-34%, increasing with age.^{7,8} Rotator cuff tears (RCT) are rotator cuff tendon tears that tend to increase with age; approximately 30% of individuals over 60 years old experience these tears.⁹ Acute calcific tendinitis involves acute shoulder pain from calcium hydroxyapatite crystal accumulation in the supraspinatus and infraspinatus tendons, typically occurring between ages 30-50, and is twice as common in women.¹⁰ Biceps tendinitis refers to inflammatory tenosynovitis of the long head of the biceps tendon, believed to result from repetitive overuse causing microtears, triggering inflammatory responses, and eventually degeneration.^{6,11} The incidence of distal biceps tendon rupture is 2.55 per 100,000 patient-years. Proximal biceps rupture occurs more frequently than distal rupture and generally affects older individuals.¹²

RCS complications are influenced by management strategies. Suboptimal treatment may lead to persistent pain, limited movement, and conditions such as frozen shoulder. Surgical interventions may cause complications like infections, stiffness, recurrent pain, neurovascular injuries, and anesthetic-related issues. These complexities highlight the importance of studying RCS-related risk factors.¹³ Epidemiological data on RCS in Indonesia, particularly at RSUP Dr. Mohammad Hoesin Palembang, remain limited. Research is needed to assess the distribution, causes, and risk factors of this disease.

METHOD

This research is a descriptive study with a cross-sectional approach utilizing secondary data from medical records of inpatients and outpatients diagnosed with rotator cuff syndrome (RCS) at RSUP Dr. Mohammad Hoesin Palembang. The data collection period spans from January 2021 to June 2024. The sampling technique used was total sampling, and 61 patients meeting the inclusion and exclusion criteria were included in the study.

RESULT

Among the 61 patients, the majority were in the 45-59 years age group (54.1%) and suffered from rotator cuff syndrome due to trauma from daily activities (42.6%). The most common occupational status was unemployed patients, making up 55.7%. The most frequent type of injury was supraspinatus impingement (36.1%). Most patients had no history of previous illnesses (32.8%) and no prior injuries (72.1%). The majority received non-operative treatment (91.8%).

Table 1. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on Age, Gender, Cause of Injury, Job, Type of Rotator Cuff Injury types, Medical History, History of Previous Injuries, and Treatment

Variabel	Total (n)	Persentase (%)
Age		
10-19 years	0	0%
20-44 years	8	13,1%
45-59 years	33	54,1%
>60 years	20	32,8%
Total	61	100%
Gender		
Male	22	36,1%
Female	39	63,9%
Total	61	100%
Cause of injury		
Sports injury	1	1,6%
Trauma from daily activities	14	23%
Trauma from everyday activities	26	42,6%
Non trauma	20	32,8%
Total	61	100%
Job		
Atlet	0	0%
Entrepreneur	10	16,4%
PNS	13	21.3%
Student/ College student	0	0%
Unemployed	34	55,7%
Others	4	6,6%
Total	61	100%
Rotator cuff injury types		
<i>Supraspinatus impingement</i> atau tendinitis	22	36,1%
<i>Rotator cuff tears</i>	20	32,8%
<i>Acute calcific tendinitis</i>	3	4,9%
Biceps tendinitis atau ruptur	12	19,7%
Unclassified	4	6,6%
Total	61	100%
Medical history		
Diabetes Melitus	12	19,7%
Hypercholesterolemia	1	1,6%
Hypothyroidism	1	1,6%
Osteoarthritis	10	16,4%

Table 1. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on Age, Gender, Cause of Injury, Job, Type of Rotator Cuff Injury types, Medical History, History of Previous Injuries, and Treatment

Overweight BMI	8	13,1%
None	20	32,8%
Others	9	14,8%
Total	61	100%
Previous injury		
Yes	17	27,9%
No	44	72,1%
Total	61	100%
Treatment		
Operative	5	8,2%
Non- Operative	56	91,8%
Total	61	100%

Table 2. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Age

Age	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement atau tendinitis</i> n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis atau ruptur</i> n(%)	Unclassified n(%)	
10-19 years	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
20-44 years	4 (18,2%)	2 (10%)	0 (0%)	2 (16,7%)	0 (0%)	8 (13,1%)
45-59 years	13 (59,1%)	13 (65%)	2 (66,7%)	3 (25%)	2 (50%)	33 (54,1%)
>60 year	5 (22,7%)	5 (25%)	1 (33,3%)	7 (58,3%)	2 (50%)	20 (32,8%)
Total	22 (100%)	20 (100%)	3 (100%)	12 (100%)	4 (100%)	61 (100%)

Table 3. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Gender

Gender	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement atau tendinitis</i> n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis atau ruptur</i> n(%)	Unclassified n(%)	
Male	7 (31,8%)	5 (25%)	2 (66,7%)	6 (50%)	2 (50%)	22 (36,1%)
Female	15 (68,2%)	15 (75%)	1 (33,3%)	6 (50%)	2 (50%)	39 (63,9%)
Total	22 (100%)	20 (100%)	3 (100%)	12(100%)	4 (100%)	61 (100%)

Table 4. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Cause of Injury

Cause of injury	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement</i> atau tendinitis n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis</i> atau ruptur n(%)	Unclassified n(%)	
Sports injury	1 (4,5%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	1(1,6%)
Trauma from daily activities	5 (2,7%)	6 (30%)	1 (33,3%)	1 (8,3%)	1 (25%)	14 (23%)
Trauma from everyday activities	9 (40,9%)	11 (55%)	0 (0%)	5 (41,7%)	1 (25%)	26 (42,6%)
Non trauma	7 (31,8%)	3 (15%)	2 (66,7%)	6 (50%)	2 (50%)	20 (32,8%)
Total	22 (100%)	20 (100%)	3 (100%)	12 (100%)	4 (100%)	61 (100%)

Table 5. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Job

Job	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement</i> atau tendinitis n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis</i> atau ruptur n(%)	Unclassified n(%)	
Atlet	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Entrepreneur	3 (13,6%)	2 (10%)	1 (33,3%)	2 (16,7%)	2 (50%)	10 (16,4%)
PNS	6 (27,3%)	4 (20%)	1 (33,3%)	2 (16,7%)	0 (0%)	13 (21,3%)
Student/ College student	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Unemployed	11 (50%)	12 (60%)	1 (33,3%)	8 (66,7%)	2 (50%)	34 (55,7%)
Others	2 (9,1%)	2 (10%)	0 (0%)	0 (0%)	0 (0%)	4 (6,6%)
Total	22 (100%)	20 (100%)	3 (100%)	12 (100%)	4 (100%)	61 (100%)

Table 6. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Medical History

Medical history	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement</i> atau tendinitis n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis</i> atau ruptur n(%)	Unclassified n(%)	
Diabetes Melitus	4 (18,2%)	4 (20%)	2 (66,7%)	2 (16,7%)	0 (0%)	12 (19,7%)
Hypercholesterolemia	0 (0%)	1 (5%)	0 (0%)	0 (0%)	0 (0%)	1 (1,6%)
Hypothyroidism	0 (0%)	0 (0%)	0 (0%)	1 (8,3%)	0 (0%)	1 (1,6%)

Table 6. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Medical History

Osteoarthritis	5 (22,7%)	3 (15%)	0 (0%)	0 (0%)	2 (50%)	10 (16,4%)
Overweight BMI	1 (4,5%)	3 (15%)	0 (0%)	3 (25%)	1 (25%)	8 (13,1%)
None	8 (36,4%)	6 (30%)	1 (33,3%)	4 (33,3%)	1 (5%)	20 (32,8%)
Others	4 (18,2%)	3 (15%)	0 (0%)	2 (16,7%)	0 (0%)	9 (14,8%)
Total	22 (100%)	20 (100%)	3 (100%)	12 (100%)	4 (100%)	61 (100%)

Table 7. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Previous Injury

Previous injury	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement atau tendinitis</i> n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis atau ruptur</i> n(%)	Unclassified n(%)	
Yes	6 (27,3%)	5 (25%)	1 (33,3%)	5 (41,7%)	0 (0%)	17 (27,9%)
No	16 (72,7%)	15 (75%)	2 (66,7%)	7 (58,3%)	4 (100%)	44 (72,1%)
Total	22 (100%)	20 (100%)	3 (100%)	12 (100%)	4 (100%)	61 (100%)

Table 8. Frequency Distribution of Patient Characteristics with Rotator Cuff Syndrome Based on the Type of Rotator Cuff Syndrome Injury and Treatment

Treatment	Rotator cuff syndrome injury types					Total
	<i>Supraspinatus impingement atau tendinitis</i> n(%)	<i>Rotator cuff tears</i> n(%)	<i>Acute calcific tendinitis</i> n(%)	<i>Biceps tendinitis atau ruptur</i> n(%)	Unclassified n(%)	
Operative	2 (9,1%)	3 (15%)	0 (0%)	0 (0%)	0 (0%)	5 (8,2%)
Non Operative	20 (90,9%)	17 (85%)	3 (100%)	12 (100%)	4 (100%)	56 (91,8%)
Total	22 (100%)	20 (100%)	3 (100%)	12 (100%)	4 (100%)	61 (100%)

DISCUSSION

This study identified that supraspinatus impingement occurred most frequently in patients aged 45-59 years (59.1%). This aligns with the findings of Hunter et al. (2021), which reported a high prevalence among older individuals due to degenerative changes, such as reduced tendon elasticity, muscle weakness, and alterations in tendon thickness.¹⁴ Similar results were observed in other studies targeting the 35-50 age group.¹⁵ Patients with rotator cuff tears (RCT) were predominantly in the 45-59 age range (65%). According to Yamamoto (2009), the average age of RCT patients is 57 years, attributed to external etiologies such as excessive load and repetitive stress, along with intrinsic factors like aging.¹⁶ Patients with acute calcific tendinitis were primarily aged 45-59 years (66.7%). Furuhashi et al. (2020) found the mean age to be 48 years, with etiologies including

repetitive physical activity, trauma, and diabetes.¹⁷ Conversely, biceps tendinitis was more common in patients over 60 years (58.3%). Singaraju (2008) supported these findings, highlighting microscopic degeneration as a contributing factor.¹⁸

In terms of gender, supraspinatus impingement was more prevalent in females (68.2%), consistent with Ahmad's (2022) study showing a 55.5% female prevalence.¹⁹ Longo et al. (2021) also noted that post-menopausal women are more susceptible due to hormonal influences.²⁰ Similarly, RCT was dominated by females (75%), aligning with Yamamoto et al. (2009), where 66.5% of patients were women.¹⁶ A study by Sasiponganan (2018) stated that women are at a higher risk for RCT due to biomechanical differences, such as smaller muscles and bone structure.²¹ However, acute calcific tendinitis was more prevalent in males (66.7%), differing from Harvie et al. (2007), where 71.6% were female.²² For biceps tendinitis, the gender distribution was equal (50% each), consistent with Bolia et al. (2023), which showed a male majority.²³

Regarding causes of injury, trauma from daily activities was the most frequent cause of supraspinatus impingement (40.9%), aligning with Wing (2004), which linked repetitive movements and poor sleeping posture to increased risk.²⁴ Similarly, 55% of RCT cases were caused by daily activities, consistent with Via et al. (2013), which highlighted repetitive use, aging, and microtrauma as key factors.²⁵ Research by Shane et al. (2008) also supports the degenerative theory.²⁶ Acute calcific tendinitis was predominantly non-traumatic (66.7%), supported by Carli et al. (2014), who emphasized calcium deposits and metabolic disorders as major contributors.²⁷ For biceps tendinitis, 50% of cases were non-traumatic, aligning with Ramsey (1999), who linked the condition to tendon degeneration.²⁸ Another study by Friedman (2008) also stated that biceps tendinitis is typically not caused by trauma.²⁹

The study found that 50% of patients with supraspinatus impingement were unemployed, inconsistent with Frost (2015), which linked higher risk to frequent overhead movements and vibrations.³⁰ Similarly, 60% of RCT patients were unemployed. Shane et al. (2008) observed a correlation between sedentary lifestyles and higher RCT incidence.²⁶ Acute calcific tendinitis showed equal distribution among self-employed, civil servants, and unemployed individuals (33.3% each). A study by Laffitte et al. (2017) stated that the causes of this injury involve factors such as lifestyle, activity, and other conditions like diabetes mellitus (DM). Occupational factors are related to lifestyle, which can become a trigger if the lifestyle is poor or if there is excessive activity.³¹ The majority of patients with biceps tendinitis or rupture were unemployed (66.7%). Lin (2023) mentioned that the exact cause of this injury is still unknown, but its pathogenesis involves degeneration, inflammation, and trauma. Although the patients were unemployed, risk factors such as degeneration and unnoticed trauma could trigger the injury.³² Raney (2017) also identified four associated factors: overuse, stress, microtrauma, and hypovascularity.³³

In terms of medical history, 22.7% of supraspinatus impingement patients had osteoarthritis, consistent with Precerutti et al. (2020), which linked subacromial space compression to inflammation.³⁴ Thirty percent of patients with RCT injuries had no history of illness, while 20% had a history of diabetes mellitus (DM). This is in line with the study by Giri et al. (2022), which stated that DM increases the risk of RCT due to excessive accumulation of glycosylation products that weaken muscles and make them more prone to injury.³⁵ In patients with acute calcific tendinitis, 66.7% had a history of DM, which is consistent with Shengtao et al. (2022), where 20.25% of patients had a history of DM. Vascular disturbances in DM reduce the flow of nutrients and oxygen to connective tissues, leading to muscle weakness, increased calcium deposits, and accelerated calcification.³⁶ In this study, 33.3% of patients with biceps tendinitis had no history of illness, while 25% had a history of obesity. This is in agreement with the study by Abate et al. (2013), which found

that obesity puts extra pressure on tendons, triggering microtrauma and inflammation.³⁷ Goedderz et al. (2022) also stated that the risk is higher in individuals with excessive BMI.³⁸

The results of the study show that 72.7% of patients with supraspinatus impingement or tendinitis had no history of prior injury. These findings are consistent with the study by Freygang et al. (2014), where 56% of patients with supraspinatus impingement or tendinitis had no prior injury history.³⁹ his injury is more commonly associated with age-related weakness and repetitive overhead activity.⁸ The majority of patients with rotator cuff tears (RCT) also had no previous injury history (75%), which aligns with the study by Abechain (2017), where 59.7% of patients had no prior trauma history. However, other studies suggest that a history of trauma can reduce muscle strength, thereby increasing the risk of acute injury.^{40,41} The majority of patients with acute calcific tendinitis (66.7%) had no history of prior injury. This is consistent with the findings of Laffitte (2018) and Draghi (2019), which indicate that this condition is not caused by trauma but by calcium deposits in the tendon.^{31,42} Pada pasien cedera *biceps tendinitis*, 58,3% tidak memiliki riwayat cedera sebelumnya. For patients with biceps tendinitis, 58.3% had no prior injury history, in line with Churgay (2009), which found that the injury is caused by muscle weakness due to overuse and aging.⁴³ However, Sethi (1999) noted that trauma can lead to instability, which may trigger injury.⁴⁴

In this study, the majority of patients with supraspinatus impingement received non-operative treatment (90.9%). This aligns with the studies by Saltychev (2015) and Tuomas et al. (2010), which stated that surgical interventions do not provide significant benefits compared to conservative treatment.^{45,46} A 85% of patients with rotator cuff tears (RCT) received non-operative therapy, which supports the theory by Dickinson et al. (2023) that non-surgical treatment is the first-line approach.⁴⁷ However, Karjalainen et al. (2019) noted that surgical treatment is more effective for complete ruptures, as it can speed up patient recovery.⁴⁸ All patients with acute calcific tendinitis received non-operative treatment (100%), in line with the findings of Angileri et al. (2023) and Kim et al. (2020), which stated that non-operative therapy is the preferred option for acute cases, although surgical treatment is more effective for chronic cases.^{10,49} Seluruh pasien *biceps tendinitis* atau ruptur menerima tindakan non-operatif (100%). All patients with biceps tendinitis or rupture also received non-operative treatment (100%), consistent with Light (2023), who reported that non-surgical therapy can provide better results.⁵⁰

CONCLUSION

This study involved 61 patients diagnosed with rotator cuff syndrome (RCS) at RSUP Dr. Mohammad Hoesin Palembang between January 2021 and June 2024. The findings and conclusions are as follows:

- a. RCS most frequently occurred in the 45–59 years age group (54,1%).
- b. The majority of patients were female (63,9%).
- c. The primary cause was trauma from daily activities (42,6%).
- d. Most patients were unemployed (55,7%).
- e. The most common injury type was supraspinatus impingement or tendinitis (36,1%).
- f. Most patients had no prior illnesses (32,8%) or no previous injuries. (72,1%).
- g. The predominant treatment was non-operative therapy (91,8%).

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