Letter to the editor

The prevalence of complex regional pain syndrome after shoulder surgery is higher if all its manifestations are included in the analysis

We were interested to read the article by Kawamata et al. on a prospective cohort study of the incidence of undiagnosed finger symptoms (UDFS), including edema, limited range of motion (ROM), changes in skin color, and abnormal sensations, as a manifestation of complex regional pain syndrome (CRPS) in 783 patients (816 shoulders) who underwent seven types of shoulder surgery (arthroscopic rotator cuff repair (ARCR), open rotator cuff repair (ORCR), arthroscopic subacromial decompression (ASD), open reduction and internal fixation (ORIF) for proximal humeral fracture with intramedullary nailing, humeral head replacement (HHR), anatomic total shoulder arthroplasty (TSA), and reverse total shoulder arthroplasty (RSA)) at four private hospitals between January 2018 and December 2019 (1). The overall incidence of UDFS was 7.1%, 7.4% for ARCR, 9.0% for ORCR, 1.4% for ASD, 13.2% for ORIF, 11.1% for HHR, 4.8% for TSA and 12.9% for RSA (1). The incidence was significantly higher in ARCR compared to ASD patients (1). Symptoms occurred earlier in the ORIF group than in the rotator cuff repair group (ARCR + ORCR) (1). The study is remarkable, but some points should be discussed.

The first issue is that, surprisingly, pain and other symptoms of CRPS were not included in the analysis (1). As pain is one of the main features of CRPS (2), it would have been imperative to assess the type and degree of pain in the study. The sole assessment of edema, ROM, skin color, and abnormal sensations is insufficient, as CRPS may additionally be manifested by persistent burning or throbbing pain; sensitivity to touch or cold; changes in skin temperature, alternating between sweating and cold; changes in skin texture, which may become tender, thin, or shiny in the affected area; changes in hair and nail growth; and muscle cramps, tremors, weakness, and muscle wasting (2). We should know how many of the included patients with postoperative CRPS were missed because the full spectrum of CRPS symptoms was not captured.

The second point is that the patients were only examined clinically, but neither by imaging techniques nor by functional examinations such as nerve conduction studies or needle electromyography (EMG). In order to assess blood flow, motor-sensory and autonomic innervation, it would have been imperative to measure arterial and venous blood flow, lymphatic drainage, nerve conduction and autonomic function of the affected arm.

The third issue is that the included patients were not screened for UDFS prior to surgery (1). Since all included patients had a shoulder problem that required shoulder surgery, it is conceivable that UDFS was already present in at least some patients before surgery. In order to avoid misinterpreting CRPS as a postoperative complication, it would have been imperative to rule out preoperative CRPS in all patients.

The fourth point is that it was not mentioned whether all patients received the same type, intensity and duration of rehabilitation. Since intensity and duration of rehabilitation can strongly influence the development of CRPS during the eight-month follow-up period, the type, frequency and intensity of rehabilitation should be included in the evaluation.

In summary, this interesting study has limitations that put the results and their interpretation into perspective. Addressing these limitations could strengthen the conclusions and corroborate the study's message. The prevalence of complex regional pain syndrome after shoulder surgery is much higher when all clinical manifestations are included in the analysis.

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Declarations

Ethical approval : not applicable
Consent to participation : not applicable
Consent for publication : not applicable
Funding : none received
Availability of data and material : all data are available from the corresponding author
Completing interests : the authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.
Author contribution : JF was responsible for the design and conception, discussed available data with coauthors, wrote the first draft, and gave final approval. xx : contributed to literature search, discussion, correction, and final approval
Acknowledgements : none

References

1. Kawamata J, Suenaga N, Oizumi N, Matsumoto H, Kikuchi A, Inoue M : Differences in incidence rate and onset timing of undiagnosed finger symptom among shoulder surgeries related to complex regional pain syndrome. J Med Invest 70(3.4) : 415-422, 2023. doi : 10.2152/jmi.70.415.
2. Harden RN, McCabe CS, Goebel A, Massey M, Suvar T, Grieve S, Bruehl S : Complex Regional Pain Syndrome : Practical Diagnostic and Treatment Guidelines, 5th Edition. Pain Med 23(Suppl 1) : S1-S53, 2022. doi : 10.1093/pm/pnac046.

Letter to the Editor Response

The editor recommends that the author respond to the reader's comments, but did not receive a response by the deadline.

Koichi Tomita
Editor-in-Chief