

# Total Joint Arthroplasty during Coronavirus Disease-2019 COVID-19 Pandemic

Seyed Mohammad Javad Mortazavi<sup>1</sup>, Seyed Hadi Kalantar<sup>2</sup>, Alireza Moharrami<sup>3</sup>, Mohammad Zarei<sup>2</sup>, Nima Hoseini Zare<sup>1,3,\*</sup>

<sup>1</sup> Professor, Department of Orthopedic Surgery, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran

<sup>2</sup> Assistant Professor, Department of Orthopedic Surgery, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran

<sup>3</sup> Resident, Department of Orthopedic Surgery, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran

\*Corresponding author: Nima Hoseini Zare; Department of Orthopedic Surgery, Joint Reconstruction Research Center, Tehran University of Medical Sciences, Tehran, Iran. Tel: +98-2161192767, Email: [nimazr70@gmail.com](mailto:nimazr70@gmail.com)

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## Abstract

**Background:** Since the outbreak of the novel coronavirus disease-2019 (COVID-19) pandemics many orthopedic elective surgeries have been postponed all over the world. There are several guidelines for resuming elective surgeries during this crisis. In our center (Imam Khomeini hospital, Tehran, Iran), we resumed total joint arthroplasty (TJAs) surgeries using preoperative history taking and physical examination. Here, we report our experience.

**Methods:** From February 2020 to August 2020, we included 165 patients who underwent TJA [70 total hip arthroplasty (THA) and 95 total knee arthroplasty (TKA)] in Imam Khomeini hospital, a referral center for COVID-19. We followed each patient from the day of hospitalization to two weeks after discharge by telephone for clinical symptoms of COVID-19.

**Results:** Only one patient became infected with COVID-19 a week after discharge from the hospital, and other patients did not show any sign or symptoms within two weeks after the discharge.

**Conclusion:** We recommend resuming the elective surgeries using a careful physical examination and medical history for all patients, and in suspicious cases, referring to a specialized COVID-19 clinic for further investigation.

**Keywords:** Arthroplasty; Coronavirus Disease-2019; Total Joint Replacement; Pandemics; Elective Surgical Procedures

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## Background

Since the novel coronavirus disease (COVID-19) began in December 2019, the world has faced many problems in public health and elective medical services. The orthopedic surgeries have been affected by the pandemic and the rate of elective surgeries such as total joint arthroplasty (TJA) has dramatically decreased. Approximately, 47% of orthopedic expenditures comes from elective procedures such as total knee arthroplasty (TKA) and total hip arthroplasty (THA). The COVID-19 pandemic has substantially impacted the patients' well-being while imposing a great cost on society (1).

Some guidelines in the United States have suggested canceling elective orthopedic surgeries during the crisis (2-4). Only five states have provided guidelines that specifically ordered orthopedic surgeries. Four of those states have explicitly allowed for trauma-related procedures and arthroplasty (1).

In this study, we aim to compare the effectiveness of our internal protocols with other centers for arthroplasty with regard to hospitalization and surgery.

## Methods

From February 2020 to August 2020, we included 165 patients who underwent TJA (70 THAs and 95 TKAs) in Imam Khomeini hospital (Tehran, Iran), a referral center for COVID-19. Based on the hospital protocols, all candidates for elective surgeries were screened for COVID-19 before admission, using history taking and

clinical examination. We referred the suspicious cases to our COVID-19 clinic for more evaluation and excluded these patients from the study. The COVID-19 clinic performed a chest computed tomography (CT) scan and reverse transcription polymerase chain reaction (RT-PCR) test for suspicious cases.

We followed each patient from the day of hospitalization to two weeks after discharge by telephone for clinical symptoms of COVID-19.

## Results

Of 165 patients, 25 had surgeries on the opposite side 3-4 days after the first surgery. The mean  $\pm$  standard deviation (SD) of age of the patients was  $53.0 \pm 8.1$  years. Each patient was hospitalized for an average of two days. A complete history and clinical examination were performed on all patients before hospitalization. Only one patient became infected with COVID-19 a week after discharge from the hospital, and other patients did not show any sign or symptoms within two weeks after the discharge.

## Discussion

In the current study, we aimed to evaluate our COVID-19 diagnostic protocol for elective surgeries such as TJA. We did not perform a chest CT scan and RT-PCR for the screening of all elective surgery candidates. Instead, medical history taking and physical examination were

performed initially, and if necessary, a consultation was requested for further investigation of the suspicious cases.

From 165 patients who underwent a TJA surgery, only one patient was affected with COVID-19 one week following the surgery. It seems that our protocol was effective for elective orthopedic surgeries in a COVID-19 center, while it was of low cost. The patients with any symptoms of COVID-19 were evaluated with other diagnostic modalities such as CT-scan and RT-PCR by referring to our COVID-19 clinic.

Many studies published in the US and recommendations by the Indian Council of Medical Research (ICMR) for the preoperative screening of COVID-19 have suggested medical history, physical examination, and RT-PCR (5, 6). The Chinese national guidelines recommended that blood tests for COVID-19 and a chest CT scan should be carried out routinely before admission for elective surgeries (7).

There are many guidelines for orthopedic surgeries with different protocols, some avoiding all elective surgeries and others allowing them (1-4). Parvizi et al. proposed a guideline for resuming the orthopedic elective surgeries (5).

They recommended that elective surgeries should not be performed for patients who are affected by COVID-19. The guideline suggests evaluating and screening all patients with physical examination and medical history, and if possible, RT-PCR (4).

In our center, general precautions were taken for all patients, such as wearing facial masks, gloves, washing hands, and keeping proper distance between the beds. We also separated the elective surgery ward from other sections, using separated radiology and intensive care units (ICUs). This policy showed to be successful and we recommend it to be used as a rule.

### Conclusion

In accordance with other studies and guidelines, we recommend resuming the elective surgeries, using specified protocols for patient selection and infection control. We suggest taking a careful physical examination and medical history for all patients, and in suspicious cases, referring to a specialized COVID-19 clinic for further investigation.

### Conflict of Interest

The authors declare no conflict of interest in this study.

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