

Review Article

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Recommendations management of preoperative nasopharyngeal swab screening before non-urgent/elective spine surgery during COVID-19 Situation

Wongthawat Liawrungrueang^{1,2}, Tuanrit Sornsard², Anugoon Niramitsantiphong², Siripoj Sribunditkul²

¹ Department of Orthopedics, Faculty of Medicine, Prince of Songkla University, Songkhla, Thailand

² Department of Orthopedics, Nakornping Hospital, Chiang Mai, Thailand

Abstract

The coronavirus outbreak has been labeled as a pandemic by the World Health Organization (WHO) in March 2020. The patient who was taken non-urgent/elective spine surgery should receive the coronavirus disease 2019 (COVID-19) nasopharyngeal (NP) swab for RT-PCR test to prevent the nosocomial cross-infection before surgery. However, there are no standard protocols for preoperative nasopharyngeal swab management for non-urgent/elective spine surgery. This article aims to propose the recommendations of preoperative NP swab for RT-PCR test before non-urgent/elective spine surgery, type of personal protective equipment (PPE) and algorithm for management in COVID-19 situation.

Keywords: NP swab RT-PCR test, Elective spine surgery, COVID-19 situation, Recommendations management.

INTRODUCTION

In December 2019, a coronavirus19 (COVID-19) or severe acute respiratory syndrome coronavirus-2 (SARS-COV-2) was discovered in Wuhan, China. The coronavirus outbreak has been labeled as a pandemic by the World Health Organization (WHO) in March 2020. [1, 2] The diagnosis of COVID-19 or SARS-COV-2 was based on epidemiological history focusing on possible exposure risk, clinical symptoms, lab results, and diagnostic imaging [3]. The coronavirus is transmitted through respiratory droplets, airborne and direct person-to-person contact [4]. The clinical presentation of patients who contact the SARS-COV-2 virus was highly variable clinical present such as fever (98%), cough (76%), and fatigue (44%) or nonspecific symptoms [5]. In currently study showed reverse transcription–polymerase chain reaction (RT-PCR) and real-time reverse transcription–polymerase chain reaction (rRT-PCR) was to detect and diagnosis COVID-19 or SARS-COV-2 [6]. However, the factors for positive RT-PCR test including overall viral load and quality collection sample techniques [3]. The nasopharyngeal (NP) swab was sensitivity of 56-83 % for the COVID-19 PCR [7], so that NP-swab should be using for screening patient who was taken non-urgent/elective spine surgery to prevent the nosocomial cross-infection before surgery. The medical professionals who perform NP-swab for collection sample must using the personal protective equipment (PPE) for airborne and respiratory droplets transmission. This article aims to propose algorithm for management, recommendations type of personal protective equipment (PPE) and preoperative NP swab for RT-PCR test before non-urgent/elective spine surgery and in COVID-19 situation.

Management principles

The non-urgent spine surgery or elective spine surgery was definition by The North American Spine Society (NASS) [8] as the spinal conditions where pain and dysfunction can be reasonably managed without procedural intervention during the pandemic (eg, Pseudarthrosis, Degenerative spinal disorders or Spondylolisthesis without significant neurologic deficit, etc.). [3, 8] The patient could be routinely admitted to the hospital after the possibility of COVID-19 infection is excluded. Author's management principles the patient could screening at screening unit of outpatient department (OPD). Non-urgent or elective spine surgery case, the spine surgeon could know history of patient's possible exposure risk, clinical symptoms, routine labs and diagnostic imaging for preoperative investigation and previous visit status.

*Corresponding author:
W.Liawrungrueang,M.D.
Department of Orthopedics,
Faculty of Medicine, Prince of
Songkla University, Songkhla,
Thailand
Email:
mint11871@hotmail.com
Tel: +66-891483458
Fax: +66-74451603

Table 1: Type of Personal Protective Equipment (PPE) for nasopharyngeal swab.

Type of Personal Protective Equipment (PPE)	Standard PPE	Full PPE	Enhanced PPE
Level	Low prevalence area	High prevalence area	Confirmed COVID-19
Recommendations of PPE equipment	<ol style="list-style-type: none"> Hair net / Medical cap Goggles/Eyes-visors Surgical mask Isolation gown Disposable gloves Shoes cover 	<ol style="list-style-type: none"> Hair net / Medical cap Goggles/Eyes-visors Face shield N95 mask Isolation gown Disposable gloves Shoes cover 	<ol style="list-style-type: none"> Medical cap Goggles/Eyes-visors Face shield N95 mask or respirator mask (3M™ Jupiter™) Medical protection gown Double disposable gloves Shoes cover

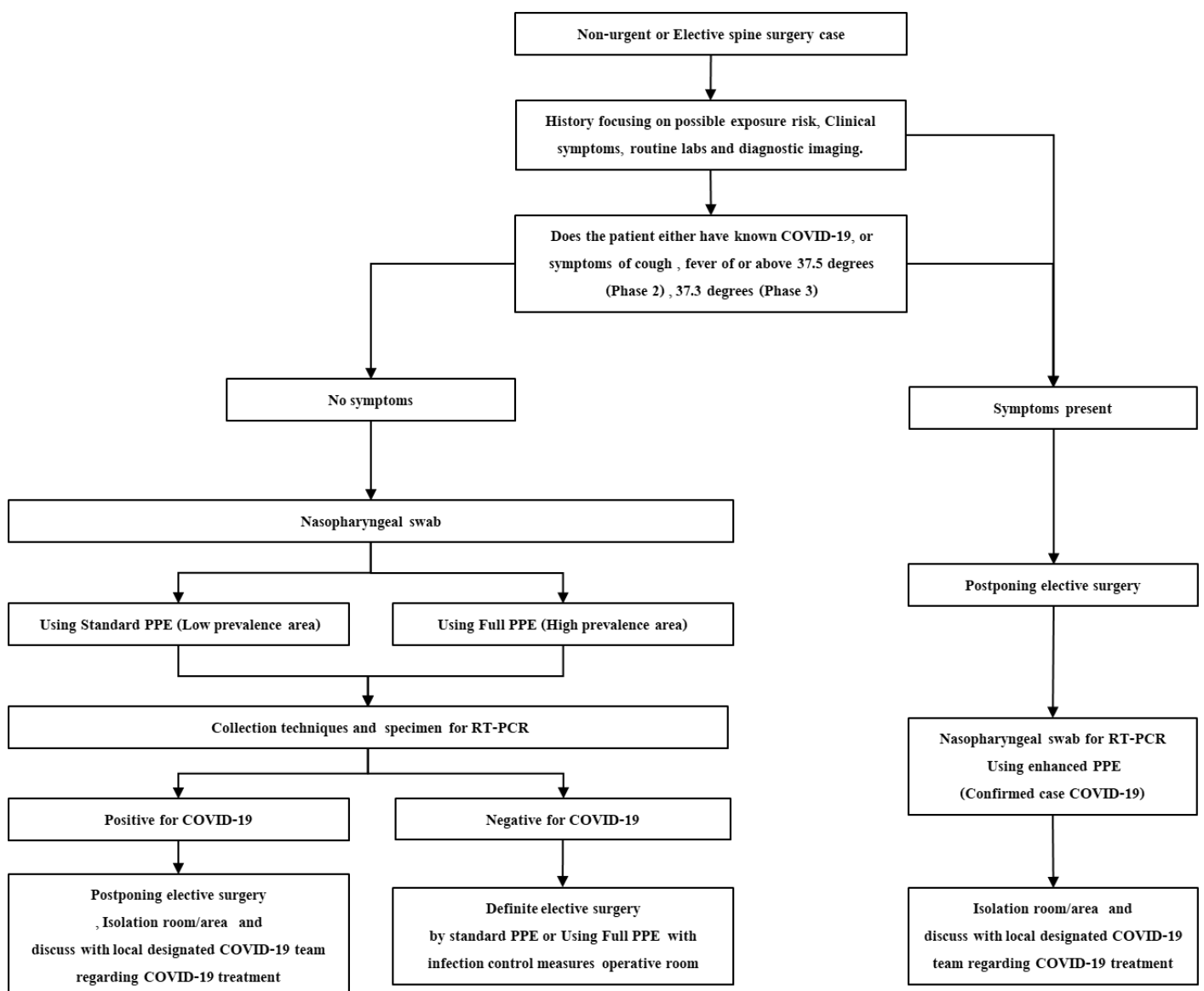


Fig. 1: Authors prefer algorithm to assess in non-urgent/elective spine surgery during COVID-19 Situation

The authors prefer to use criteria of screening as a patient either have known COVID-19, or symptoms of cough, fever of or above 37.5 degrees in WHO Phase 2 and 37.3 degrees in WHO Phase 3, or patient risk contact COVID-19 for pandemic area [1]. If the patient has symptoms present in author criteria, all patients could take a surgical face mask, postponing elective surgery and nasopharyngeal swab was the preferred testing method of the WHO and CDC [9] for confirmed diagnosis COVID-19. Medical professionals who perform NP-swap PT-PCR for collection sample could using guideline for type of PPE (table 1). Symptoms patient, Medical professionals who perform NP-swap PT-PCR could using Enhanced PPE. In asymptomatic patients, Medical professionals who perform NP-swap PT-PCR could be using Standard PPE in low prevalence area and using Full PPE in high prevalence.

The patient could be admitted to the hospital after NP-swap PT-PCR reports negative for COVID-19. The spine surgeon able to definite planning and elective surgery by standard PPE or using Full PPE with infection control measures operative room. However, patient's NP-swap PT-PCR reports positive could postponing elective surgery, isolation room/area and discuss with local designated COVID-19 team regarding COVID-19 treatment. However, the previous review suggest other investigation and management to chest CT and SARS-CoV-2 nucleic acid test should be reexamined 3 days before the operation [10-12].

The authors concluded and designed an algorithm to assess as (Fig.1). The patient that confirmed COVID-19 should be transferred to the isolation ward for discuss with local designated COVID-19 team regarding COVID-19 treatment.

CONCLUSION

The authors recommends that the preoperative nasopharyngeal swab screening before non-urgent/elective spine surgery should be used in the surgical management of any patients during the COVID-19 outbreak crisis. The universal precautions is very important for prevention nosocomial cross-infection. This algorithm can be help to the decision for management, However it should be revised or modified according to updated knowledge of prevention, novel treatment, and laboratory testing technology for COVID-19. All of the authors hope that the readers will use this algorithm as a prototype and modified/developed for the better protocol.

Ethical statement

The Nakornping Hospital Institutional Review Board provided its approval to publish the details. This review article was based on Nakornping Hospital prefers "Guideline for Personal Protective Equipment (PPE) usage for COVID-19 prevention in Nakornping Hospital Chiang Mai (The committee of infectious disease control Nakornping Hospital; the 2nd revision 16th April 2020)"

Conflicts of interest

The authors declare no conflicts of interest.

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