CPQ Orthopaedics (2020) 4:1
COVID Issue Paper

Treating Patients With Primary Musculoskeletal Tumors in the Time of COVID-19 Pandemic, Alleviating the Pressure on Care-Providers

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Received: 08 June 2020

Published: 10 June 2020

Keywords: *Bone Sarcoma; Soft Tissue Sarcoma; Multidisciplinary Research; Connective and Soft Tissue Neoplasms; Bone Neoplasms*

Abstract

Due to the COVID-19 pandemic, most -if not all- elective orthopaedic surgery has been temporarily postponed worldwide. Patients with trauma and musculoskeletal tumors are generally excluded from this general rule. Nonetheless, during this COVID-19 outbreak, patients with primary benign and malignant tumors face the major risk of being unable to receive customary medical services in a timely fashion. The Oncological Multidisciplinary Teams need to take into account factors never considered before, when deciding on the optimal treatment of a patient with a musculoskeletal

tumor. We present our local Multidisciplinary Team's guidelines to implement additional instructions or alter existing practices during the COVID-19 pandemic, in one of the largest tertiary Hospitals of our country. These guidelines are expected to assist physicians who are involved in the overall management of patients with tumors necessitating surgical intervention.

Overview

On March 11th, 2020, the World Health Organization assessed and characterized the COVID-19 as a pandemic. Ever since, things are changing and evolving very rapidly [1]. Orthopaedic surgeons are not usually considered front-line staff in the fight against a viral pandemic [2]. Furthermore, the majority of elective orthopaedic operations, aim to improve the patients' quality of life. As a result, most -if not all- elective orthopaedic surgery has been temporarily postponed worldwide.

Patients with trauma and musculoskeletal tumors are generally excluded from this general rule. Nonetheless, during this COVID-19 outbreak, patients with cancer face the major risk of being unable to receive the necessary medical services both in terms of getting into the hospital and secondly enjoying regular medical care once there [3]. Concerning patients with musculoskeletal tumors, the existence of designated Musculoskeletal Tumors' Treatment Centers [4-6] -being most of the times front-line departments of tertiary hospitals- may render the treatment of these patients in a timely and efficient manner, an even more difficult task. The scarcity of these centers of excellence in the treatment of musculoskeletal tumors, poses additional significant challenges during the COVID-19 era, especially if one considers the possibility to transfer patients to cancer centers which are not affected, or are moderately affected, by the COVID-19 [7]. As a result, there may be an immense pressure exerted on orthopaedic surgeons, who undoubtedly are at the front-line of identifying, diagnosing and treating patients with musculoskeletal tumors.

Facing the COVID-19 Challenges When Treating Patients With Primary Musculoskeletal Tumors

During these harsh and unprecedented times, even the Oncological Multidisciplinary Teams (MDTs) may need to take into account factors never considered before [4-6], when deciding on the optimal treatment of a patient with a musculoskeletal tumor. The necessity for immediate surgical intervention, or the possible postponement of the "operative window" period, need to be decided upon new criteria. The prognosis, the life-expectancy, the age and the existence of co-morbidities of the patient, should be thoroughly discussed under the light of recent pandemic developments. Following thorough consultation with all the members of our MDT, and based on our country's current epidemiological status, we have reached an unanimous agreement to implement new rules during our Hospital's MDT meetings, in order to decide whether a patient with a tumor should be operated on as an emergency or an urgent procedure, or whether the operation could or should be postponed for a later date (Figure 1). We propose these local guidelines on the basis of potential adaptation and further implementation by other MDT committees in Musculoskeletal Oncology Departments.

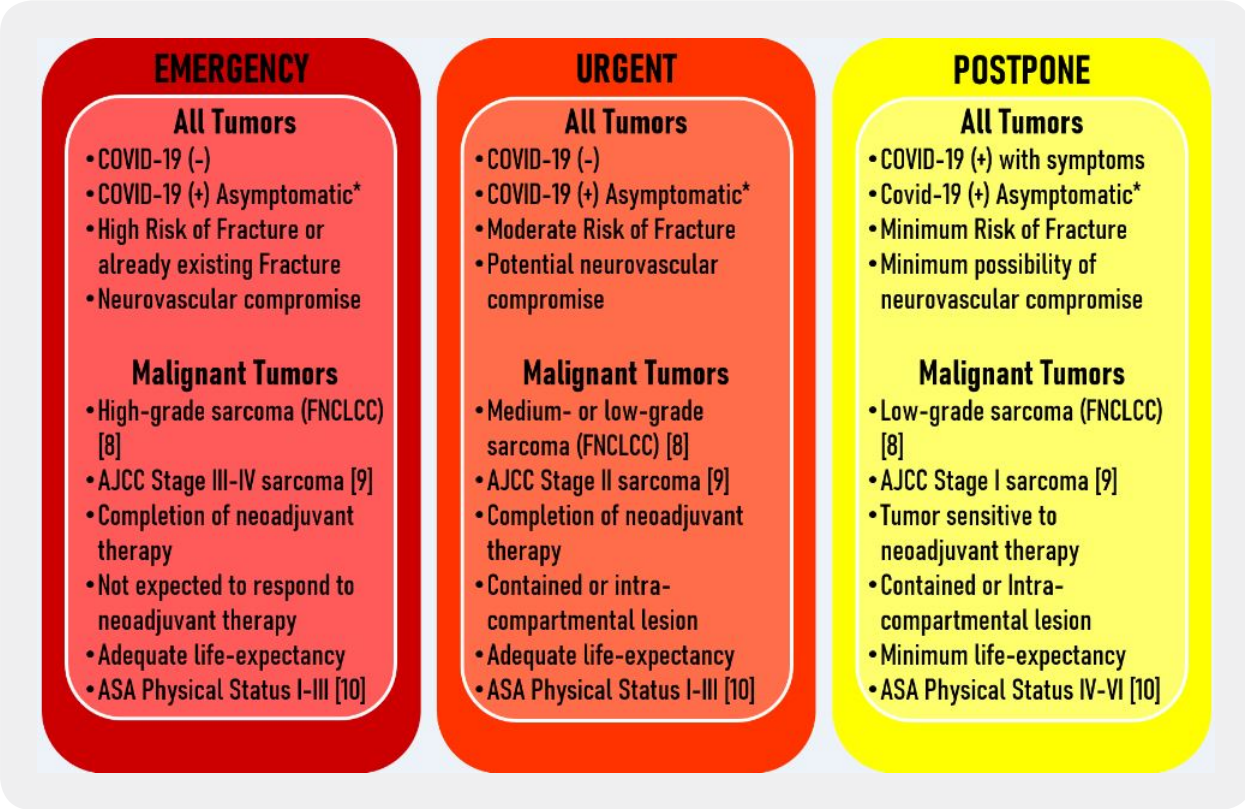

Figure 1: *Proposal of additional medical issues to be considered during an MDT meeting discussing the necessity for an immediate operation on a patient with a musculoskeletal tumor, during the COVID-19 pandemic. (FNCLCC = Fédération Nationale des Centres de Lutte Contre Le Cancer, AJCC = The American Joint Committee on Cancer, ASA = American Society of Anesthesiologists). *For COVID-19 (+) asymptomatic patients, consider further discussing the pros and cons of an immediate operative procedure.*

Further to medical and surgical considerations, there are also patient related issues that need to be taken into account before reaching a decision during an MDT meeting. The need for Intensive Care Unit (ICU) stay postoperatively, the increased need for blood transfusions perioperatively, the availability of absolute non COVID-19 wards and ICU units, the availability of all medical and surgical specialties potentially involved in the musculoskeletal oncological surgery, the possibility of an operation on an outpatient basis, should now be considered. As a result, our MDT board has been recently enhanced by an ICU internist, a senior Hospital Administrator and a member of the Infection Control Unit (Figure 2).

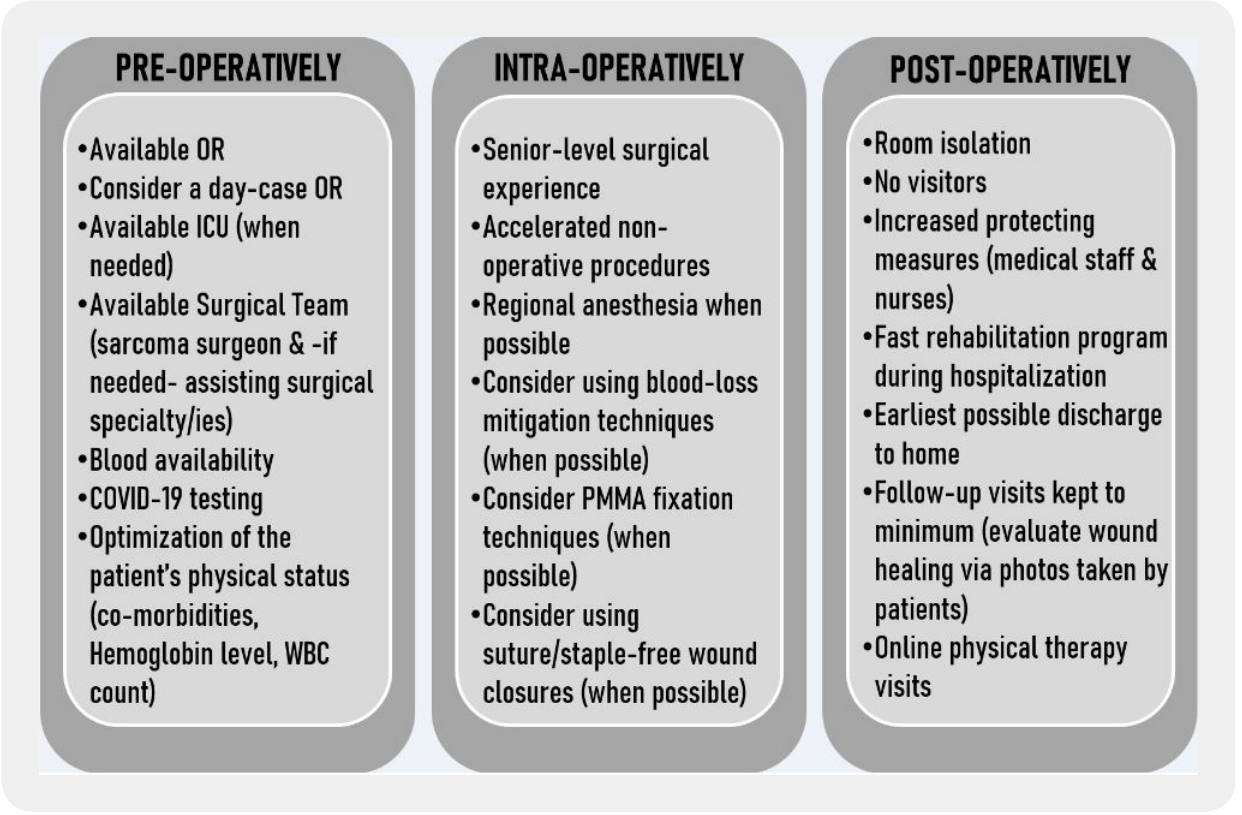

Figure 2: *Additional patients' logistics issues that need to be considered before reaching an MDT decision, during the COVID-19 pandemic. (WBC = White Blood Cell)*

We present the adapted treatment algorithms for patients with bone (Figure 3) and soft-tissue (Figure 4) primary tumors in the COVID-19 era, which are currently employed in our Institution which is one of the largest tertiary hospitals of our country [4-6]. It has been decided by the MDT that these algorithms will be implemented during this strictest phase of the COVID-19 pandemic, they will be re-assessed and updated as needed on a monthly basis and they will be re-implemented should a similar emergency occur [8-10].

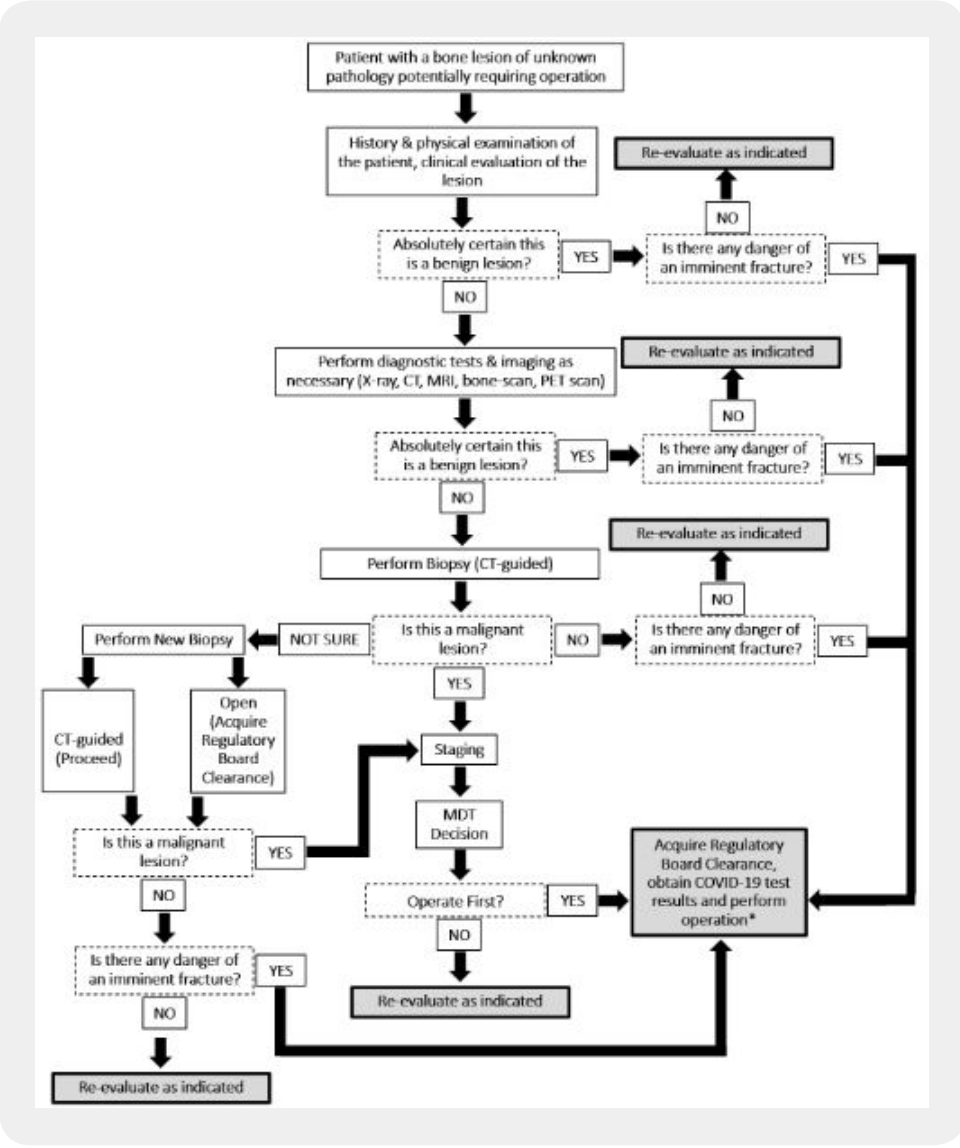

Figure 3: *Proposed algorithm for the treatment of patients with a bone lesion of unknown pathology, potentially requiring a surgical intervention, during the COVID-19 pandemic. (CT = computed tomography, MRI = magnetic resonance imaging, PET = positron emission tomography). *Additional issues regarding the necessity of an immediate operation are discussed in Figure 1.*

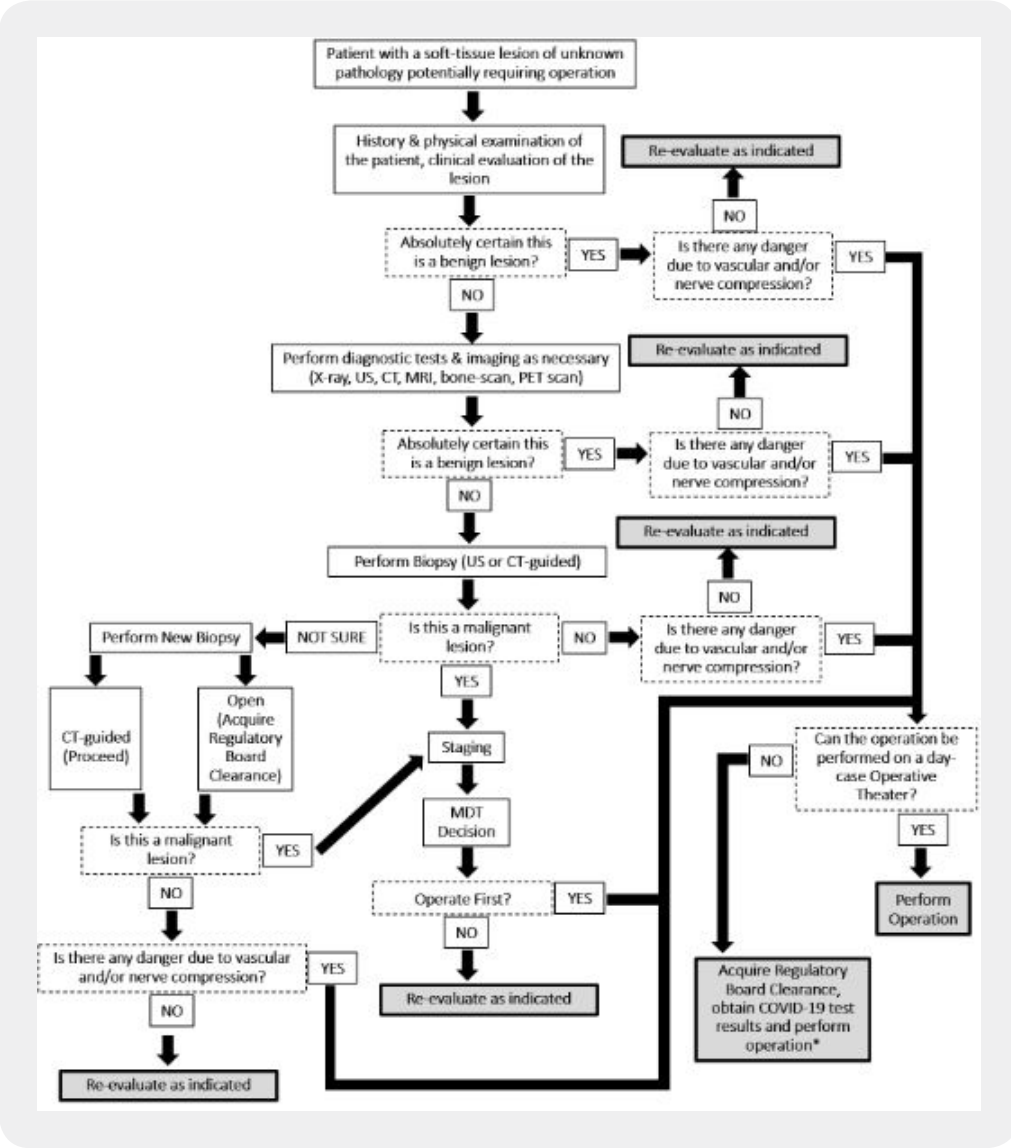

Figure 4: *Proposed algorithm for the treatment of patients with a soft-tissue lesion of unknown pathology, potentially requiring a surgical intervention, during the COVID-19 pandemic. (US = ultrasound). *Additional issues regarding the necessity of an immediate operation are discussed in Figure 1.*

Conclusion

The COVID-19 pandemic will undoubtedly change the treatment management of our patients under emergency and long running scenarios for the years to come [11]. Oncological MDTs have always succeeded in alleviating the immense burden exerted on individual care-providers, let alone offering optimal treatment to patients with musculoskeletal tumors [4-6]. In the COVID-19 era, implementing precise guidelines, based on current international and local epidemiological data on virus spread, health-system capacity and

human resources, will certainly lower patients' iatrogenic morbidity, will identify optimal management and will relieve unnecessary pressure upon care-providers.

Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this article.

Funding

This research didn't receive grants from any funding agency in the public, commercial or not-for-profit sectors.

Ethics Committee Approval

This study did not require our Institute's Ethics Committee approval.

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