



Coronavirus disease 2019 pandemic: should we delay cartilage regenerative procedures and accept the consequences, or can we find a new normality?

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Abstract

The COVID-19 pandemic changed elective surgery routine. During the initial spread of the novel coronavirus, elective surgery has been stopped and only emergency and trauma and oncologic procedures were allowed. Following the decrease of the contagion curve, elective surgery is slowly being recovered. The hospitals should create a pre-hospitalization path to identify possible infected patient and further postpone surgery. In this setting, cartilage repair surgery should not be neglected, because this could potentially lead to an increase of patients needing major joint replacement surgery.

Dear Editor

The COVID-19 pandemic, caused by the novel coronavirus (SARS-CoV-2), had a strong negative impact on international communities. Emergency departments and ICUs have been under a major stress and in orthopaedic surgery, only emergencies and trauma-related or oncologic procedures were allowed [1]. Orthopaedic departments underwent a strong limitation, since elective surgery represents approximately 47% of orthopaedic expenditures.

With the virus spread being progressively controlled in Italy, the healthcare system is heading towards a progressive return to normal activity. There are several key aspects to be considered to return to elective procedures in a safe environment.

In a large orthopaedic facility, such as the Rizzoli Institute, with an emergency department, the maintenance of a specific pathway is mandatory to treat potentially infected patients: trauma patients for whom surgery is mandatory, who are isolated until the swab, executed at the time of the admission, whose results are negative. If positive, the isolation is maintained in a dedicated department and surgery is performed in a

dedicated operating room, with assigned access, staff and instrumentation.

While resuming elective procedures, preference has been given to traditionally considered “major” surgery, such as spinal procedures or primary and revision large joint replacements. Cartilage regenerative procedures and even orthobiologics were among the suspended procedures; still, a delay in treatment of arthritis-promoting lesions could result in an increased number of patients who will need joint replacement in the future, with potential long-term influence on quality of life [2].

To effectively and safely return to cartilage repair surgery, the entire course of treatment should be structured to either avoid risk of infection or make it of the lowest possible impact for the hospital itself, in order to make it feasible.

Patients scheduled for a cartilage procedure should visit the outpatient clinic and undergo a nasopharyngeal swab 48 hours before hospitalization [3].

The majority of cartilage treatment may be performed in day surgery, with minor risks of disease transmission. With regard to the inpatients, only the first patient scheduled as inpatient will be hospitalized in the standard orthopaedic department the night before surgery. All the other patients will enter the hospital in the early morning of surgery.

Patients who have a positive result to the nasopharyngeal swab for COVID-19 will be postponed and immediately reported to the hygiene department.

A functional isolation of the patients has been created by washable and removable dividing walls between inpatient

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beds (each room has 2 beds), and in day surgery. No permission for family and friends' visit has been given. Indications to day surgery procedures have been extended, in order to reduce hospitalization time.

Patients affected by injuries such as ankle impingement, osteochondral lesion of the knee and the ankle and OA with bone marrow lesions or symptomatic bone marrow oedema could be easily treated in day surgery, as well as all the orthobiologic procedures, such as BMAC injections, needing a surgical procedure; injuries involving larger joint such as hip osteonecrosis and knee or ankle OA, requiring osteotomy procedures, such tibial or femoral osteotomy + cartilage addressing, or ankle joint reconstruction + cartilage addressing, may be scheduled for one night in-hospital stay.

Even in the case of patients with negative swab, all the medical and nursing staff involved in the surgery should adopt the correct personal protective equipment (PPE) such as disposable caps, safety goggles, surgical masks, protective clothing, disposable gloves and shoe covers.

The first follow-up of cartilage repair procedure, usually at one month, is mandatory, to evaluate possible early complications and should not be telematic. Outpatient visits therefore are organized in full respect of social distancing and infection spread-avoiding rules: body temperature is checked at the entrance, all the patients should wear personal protective equipment such as masks and sanitizing gel is disposable at the entrance of every room. Further follow-up may be telematic, depending from patient's conditions and the pandemic spread situation, with a mandatory MRI at six months.

Cartilage lesions are considered a "minor" pathology in orthopaedic pantheon. Nonetheless, young and active patients

are frequently interested, with major impact in quality of life [4, 5]. Due to the nature of the surgeries, with very limited hospitalization or day surgery being required, by using the appropriate care, the risk of disease transmission is very low. Furthermore, young and active patients are less prone to develop a severe form of illness, while they may have a worsening of their joint conditions, if procedures are delayed too long. For these reasons, we should consider cartilage regenerative procedures and orthobiologics, safe and feasible procedures, in this early reopening stage.

References

1. Grassi A, Pizza N, Tedesco D, Zaffagnini S (2020) The COVID-19 outbreak in Italy: perspectives from an orthopaedic hospital. *Int Orthop* 1–5. <https://doi.org/10.1007/s00264-020-04617-7>
2. Johnson VL, Hunter DJ (2014) The epidemiology of osteoarthritis. *Best Pract Res Clin Rheumatol* 28:5–15. <https://doi.org/10.1016/j.berh.2014.01.004>
3. Petrucci G, De Virgilio A, Pichi B et al (2020) COVID-19: nasal and oropharyngeal swab. *Head Neck*. <https://doi.org/10.1002/hed.26212>
4. Gomoll AH, Filardo G, de Girolamo L et al (2012) Surgical treatment for early osteoarthritis. Part I: cartilage repair procedures. *Knee Surg Sport Traumatol Arthrosc* 20:450–466. <https://doi.org/10.1007/s00167-011-1780-x>
5. Hochrein A, Zinser W, Spahn G et al (2019) What parameters affect knee function in patients with untreated cartilage defects: baseline data from the German Cartilage Registry. *Int Orthop* 43:1107–1112. <https://doi.org/10.1007/s00264-018-4125-2>

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