

Impact of asymptomatic COVID-19 patients in global surgical practice during the COVID-19 pandemic

Editor

The rapid spread of COVID-19 has changed the global surgical care¹⁻³. Patients infected with COVID-19 may present without typical symptoms, and such asymptomatic patients may potentially trigger in-hospital outbreaks by transmitting the disease to health care providers and other hospitalized patients^{4,5}. Further, asymptomatic COVID-19 patients have worse postoperative outcomes with an unexpectedly

high morbidity and mortality, reaching 20.5 per cent deaths⁶. However, we do not have objective global data on this issue. In an attempt to clarify the current global surgical practice under the COVID-19 pandemic particularly focusing on the preoperative screening of asymptomatic COVID-19 patients, we conducted a cross-sectional online survey on surgical practice. The survey was administered to surgeons worldwide through international surgical societies, social media and personal contacts during 2 April to 8 April. The results were analyzed by country's cumulative deaths

number by 8 April, 2020 (high risk, >5000; intermediate risk, 100-5000; low risk, <100) (<https://covid19.who.int/>).

The survey was completed by a total of 936 centres in 71 countries, involving 5 high risk countries (330 centres), 20 intermediate risk countries (242 centres) and 46 low risk countries (364 centres). Table 1 summarizes the results of the survey. The majority (73.8 per cent) of the centers performed preoperative COVID-19 testing based on symptoms or suspicious radiologic findings. Universal COVID-19 testing for every patient was performed in only 16.6

Table 1 Preoperatively asymptomatic COVID-19 patients by the countries' risk group

| | Countries by risk group | | | | P Value |
|--|-------------------------|------------------|------------------|-----------------|---------|
| | Overall 936 | High risk 330 | Int. risk 242 | Low risk 364 | |
| Testing policies before surgery. No. (%)^a | | | | | |
| Everyone | 155 (16.6) | 91 (27.6) | 43 (17.8) | 21 (5.8) | <.001 |
| All oncologic patients | 42 (4.5) | 24 (7.3) | 14 (5.8) | 4 (1.1) | <.001 |
| All emergency patients | 73 (7.8) | 41 (12.4) | 22 (9.1) | 10 (2.7) | <.001 |
| Symptomatic or suspicious radiological features | 691 (73.8) | 214 (64.8) | 183 (75.6) | 294 (80.8) | .03 |
| Experienced preoperatively asymptomatic patients tested positive after surgery. No. (%) | | | | | |
| Yes | 257 (27.5) | 170 (51.5) | 66 (27.3) | 21 (5.8) | <.001 |
| No | 679 (72.5) | 160 (48.5) | 176 (72.7) | 343 (94.2) | |
| Experienced preoperatively asymptomatic patients tested positive after surgery with symptoms. No. (%) | | | | | |
| Yes | 231 (24.7) | 158 (47.9) | 55 (22.7) | 18 (4.9) | <.001 |
| No | 705 (75.3) | 172 (52.1) | 187 (77.3) | 346 (95.1) | |
| Experienced preoperatively asymptomatic patients tested positive after surgery without symptoms. No. (%) | | | | | |
| Yes | 157 (16.8) | 108 (32.7) | 39 (16.1) | 10 (2.7) | <.001 |
| No | 779 (83.2) | 222 (67.3) | 203 (83.9) | 354 (97.3) | |
| Preventive measures changed due to the asymptomatic patients? (2nd survey) No. (%)^{a,b} | | | | | |
| Yes, PPE use | 40 (26.8) | | | | |
| Yes, PPE availability | 23 (15.4) | | | | |
| Yes, preoperative patient testing | 55 (36.9) | | | | |
| Yes, staff testing | 26 (17.4) | | | | |
| Yes, staff rotation | 16 (10.7) | | | | |
| Yes, COVID-19 dedicated area | 54 (36.2) | | | | |
| Yes, stop elective surgeries | 31 (20.8) | | | | |
| No | 27 (18.1) | | | | |
| Did you observe a worse surgical outcome related to asymptomatic COVID-19 patient? (2nd survey) No. (%)^b | | | | | |
| Yes | 46 (30.9) | | | | |
| No/I don't know | 103 (69.1) | | | | |

Int: intermediate. ^aPercentages do not add up to 100 because of the multiple choice question. ^bThe second survey respondents are the centers that answered 'yes' in the question 'Experienced preoperatively asymptomatic patients tested positive after surgery' ($n = 149$). The data are not analyzed by countries' risk group.

per cent of the centers, and the proportion was less than 30 per cent even in severely affected countries. Asymptomatic COVID-19 patients who tested positive postoperatively were reported from 27.5 per cent of the centres, with higher rates in higher risk countries (high risk, 51.5 per cent; intermediate risk, 27.3 per cent; low risk, 5.8 per cent; $p < 0.001$). To further clarify the clinical impact of asymptomatic COVID-19 patients, the second survey was sent to 218 centres that experienced such patients and had contact information, and 149 responded. The median number of asymptomatic COVID-19 patients testing positive after surgery per centre was 2 (range, 1 to 20). After experiencing the first asymptomatic COVID-19 patients, most centers (81.9 per cent) changed testing policies and/or preventive measures in surgical practice. Worse surgical outcomes in asymptomatic COVID-19 patients were reported from 30.9 per cent of the centres.

To our knowledge, this is one of the largest international surveys on COVID-19 in the field of surgery. Acknowledging the biases caused by unintended selection of centres, unequal number of centres per country and uneven geographical coverage, this large survey captured the global surgical practice under the COVID-19 pandemic and highlighted the threat of asymptomatic patients. Asymptomatic COVID-19 patients who were tested positive postoperatively may represent insufficient preoperative screening in the current surgical practice. The clinical impact of asymptomatic COVID-19 patients for surgeons is evident by the fact that the detection of such asymptomatic patients resulted in the change of testing policies and/or preventive measures in most of the centres. We strongly believe that in the coming phase of pandemic, during which many medical centres will resume elective surgeries, a call for action in surgical departments for more intensive screening programs is needed in global plans.

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Supporting information

Additional supporting information can be found online in the Supporting Information section at the end of the article.