

## Where have all the appendicitis gone? patterns of urgent surgical admissions during the COVID19 pandemic

### Editor

Apart from direct impact on infected patients, the first wave of the SARS-CoV-2/COVID19 pandemic has impacted patients with other pathologies who have not had access to care due to redirection of healthcare staff and resources. As well, inability and fear of patients to present to the emergency department has led to decline in urgent and emergent care consults.

In order to understand the impact of the first wave of COVID19 on unplanned admissions and mortality in general surgery, we performed a preliminary analysis on admissions from the Emergency Department to the General & Digestive and Gastrointestinal Surgery Services at the Hospital Clínic, a tertiary care center serving an encatchment population of 540,000. Admissions were grouped into categories based on principal diagnosis and among three 30-day periods based on evolution and

national response to the first wave of COVID19 (Fig. 1).

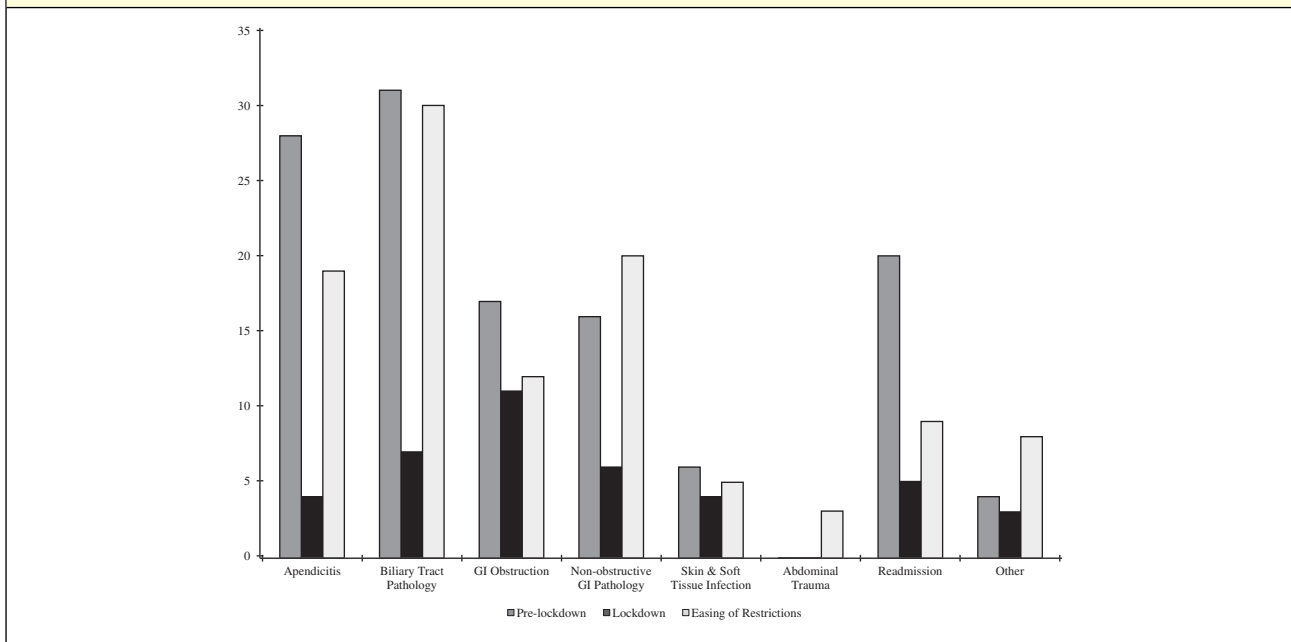
Between 02/13/2020 and 05/12/2020, there were 268 unplanned general surgery admissions. Admissions were similar in number during 30-day periods both preceding and following complete lockdown ( $N = 122$  and  $106$ , respectively) but declined considerably during lockdown ( $N = 40$ ). Changes were most notable in admissions for appendicitis ( $-600\%$  versus previous 30 days) and biliary tract pathology ( $-348\%$ ), while admissions for obstructive gastrointestinal tract pathology remained more stable (Fig. 1). More cases were managed non-operatively in both periods sequentially following onset of lockdown ( $63\%$  and  $51\%$ , respectively) versus the pre-lockdown period ( $39\%$ ;  $P = 0.011$  and  $0.079$ , respectively). In-hospital mortality increased between the pre-lockdown period ( $1.6\%$ ) and subsequent periods of complete lockdown ( $7.5\%$ ,  $P = 0.097$ ) and easing of restrictions ( $5.7\%$ ,  $P = 0.10$ ).

During the first wave of COVID19, admissions for all but obstructive GI

pathology dropped in the immediate period following onset of lockdown and increased again with gradual easing of restrictions. While behavioral changes during confinement can alter the evolution of certain diseases, they do not support a reduction in incidence or exacerbation of preexisting gastrointestinal and biliary tract pathology. Reduction in consults for these entities during confinement is likely a consequence of failure to present to the hospital and some degree of self-medication at home. This may be the case for all but obstructive GI pathology, where patients themselves can do less to alleviate their symptoms<sup>1</sup>.

We observed tendency toward higher in-hospital mortality following onset of lockdown, with 2 deaths among 122 admissions during the 30 days preceding lockdown and 9 deaths among 146 admissions during the subsequent 60 days. Though figures are small, they support the general sentiment among surgical staff that fewer but sicker patients were arriving following the onset of lockdown. This pattern has been observed for other pathologies,

**Fig. 1 Emergency general surgery admissions during the 30-day periods in 2020 preceding lockdown due to the first wave of the COVID19 pandemic (02/13-03/13), of complete lockdown (03/14-04/12), and following the start of gradual easing of restrictions (04/13-05/12)**






including acute myocardial infarction and stroke, where reports have described fewer, delayed, and more severe clinical presentations and worse outcomes in early 2020 versus 2019<sup>2-4</sup>.

While it has been seen that risk for death following perioperative COVID-19 infection is relatively high<sup>5</sup>, none of the deaths we observed following unplanned admission to general surgery 02/12-05/12/2020 occurred in patients with diagnosis or clinical or radiological suspicion of COVID-19. Reasonable attempts should be made to avoid or postpone surgical interventions in patients with active infection, but patients with abdominal pain and other forms of acute general surgical pathology should not necessarily avoid or postpone consulting for their complaints.

In summary, the first wave of the COVID-19 pandemic has influenced unplanned general surgery admissions, management, and outcomes at our center. During future waves of the same disease or other pandemics of a similar

nature, pathways need to be available for patients to consult their symptoms in a timely fashion, when early intervention can alter disease progression and delay if not avoid altogether major adverse events.

Amelia J. Hessheimer<sup>1</sup> , Xavier Morales<sup>2</sup>, César Ginestá<sup>1</sup>, Víctor Turrado<sup>2</sup>, Alex Borin<sup>1</sup> , Fabio Ausania<sup>1</sup>, Raquel Bravo<sup>2</sup>, Constantino Fondevila<sup>1</sup>  and Antonio M. Lacy<sup>2</sup>

<sup>1</sup>General & Digestive Surgery, Institut Clínic de Malalties Digestives i Metabòliques, Hospital Clínic, IDIBAPS, CIBERehd, University of Barcelona, Barcelona, Spain and <sup>2</sup>Gastrointestinal Surgery, Institut Clínic de Malalties Digestives i Metabòliques, Hospital Clínic, University of Barcelona, Barcelona, Spain

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