

Trends in appendicectomy during the COVID-19 pandemic

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Dear Editor

It has commonly been thought that fear of contracting COVID-19 has led patients to postpone seeking emergency care, although according to a previous study¹, the rates of acute surgery remained stable during the lockdown. One of the most common reasons for seeking emergency care is acute abdominal pain, and acute appendicitis is one of the most common causes of such pain^{2,3}. The effect of the national lockdown, social restrictions and fear of COVID-19 on the rate of appendicectomy remains unclear.

This study was conducted in three large Finnish hospitals (Tampere University Hospital, Mikkeli Central Hospital and Central Finland Hospital) between 1 February 2020 and 30 April 2020. These hospitals provide healthcare services in a catchment area of approximately 900 000 inhabitants. Patient data were collected from the electronic medical record systems of the participating hospitals using ICD-10 diagnostic codes (K35.0, acute appendicitis with generalized peritonitis; K35.1, acute appendicitis with peritoneal abscess; and K35.9, acute appendicitis, other and unspecified) and the (Nordic Medico-Statistical Committee (NOMESCO) Classification of Surgical Procedures⁴ procedure codes (JEA00, appendicectomy; and JEA01, laparoscopic appendicectomy). Complicated appendicitis was defined as perforation or abscess verified in surgery or by CT. The presence of an appendicolith on CT without abscess or perforation of the appendix was defined as uncomplicated appendicitis. Patient visits and rate of perforated appendicitis were analysed in 1-week time periods. In statistical analysis, the Mann–Whitney *U* test and the χ^2 without Yates' correction were used. Analyses were performed using SPSS[®] Statistics version 26 (IBM, Armonk, NY, USA) and R version 3.6.2 (The R Foundation for Statistical Computing, Vienna, Austria).

During the 13-week study period, a total of 257 patients had a clinical diagnosis of acute appendicitis. The proportion of complicated appendicitis in the whole study population was 21.4 per cent (55 patients), and the range was from 9 per cent (in week –4) to 30 per cent (in week –3) (Fig. 1). The median prehospital duration of symptoms in patients with acute appendicitis remained at 1 (i.q.r. 0–1) day both before and during the beginning of the lockdown (weeks –1 and 0). However, between weeks 1 and 2, the median prehospital symptom duration increased from 1 to 2 (IQR: 2–3) days. The median length of hospital stay remained at 2 (IQR: 1–

2) days during weeks –1 to 2. There was no increase in preoperative laboratory findings (C-reactive protein level and leucocytosis) after the lockdown when societal restrictions were lifted. Postoperative complications based on the Clavien–Dindo classification followed a similar trend before and after the lockdown.

During the study period, the number of patients with acute appendicitis decreased. However, prominent changes in the rate of complicated appendicitis were not observed. The highest rates of complicated appendicitis were observed 3–5 weeks (28–29 per cent) after the start of the lockdown, yet a similar rate was seen in weeks –3 (30 per cent) and 0 (28 per cent). The rate of complicated appendicitis remained higher than usual until the end of the follow-up. Prehospital symptom duration increased slightly in weeks 1 and 2, which may have been the result of social restrictions and citizens avoiding unnecessary emergency department (ED) visits. At the same time, the proportion of acute appendicitis first decreased in week 1 and then rebounded in week 2. This finding might be due to patients waiting longer at home before being admitted to the ED unit. However, this trend was not seen in the rates of complicated appendicitis. In this study,

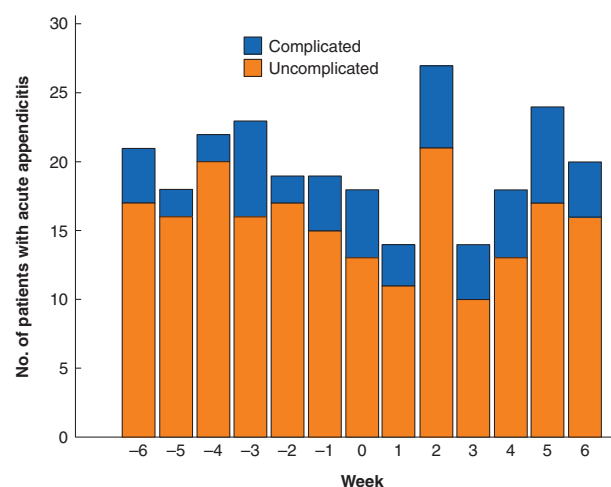


Fig. 1 Number of patients who had appendicectomy and the proportion with complicated appendicitis over the study period

prominent changes in the rate of postoperative complications or laboratory findings were not observed.

In conclusion, the incidence of complicated appendicitis did not change during the COVID-19 pandemic. Although the number of patients with acute appendicitis decreased, prominent changes in the rate of complicated appendicitis were not observed, indicating that patients sought ED help when they had abdominal pain.

Disclosure. The authors declare no conflict of interest.

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