

Peer Review File

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Reviewer A

Summary: This study by Hong et al. aims to compare the rate of foreign body ingestions in children in the Daegu-Kyungpook province. The study is limited by unclear study definitions. Although it is vital to continue to evaluate high-risk situations for foreign body ingestions that change the daily lives of children and their caregivers, the study requires further clarification to understand the conclusions of this study.

Abstract

Comment 1: The terminology of “annual occurrence rate for foreign body ingestions” is not clear. Does this represent outpatient and emergency department visits only? If so, consider more specific language since there are children with foreign body ingestions that do present for care.

Reply 1: This study targeted patients who visited the outpatient and emergency departments of seven tertiary referral hospitals. As you commented, we have modified the sentence.

Changes in the text: The abstract's results section was modified to provide a more specific description as follows: "The annual occurrence rate of foreign body ingestions in patients visiting seven tertiary referral hospitals." (see Page 03, line 44)

Comment 2: For the conclusion for lines 48-49, the statement regarding the proportion of visits for foreign body ingestions is ambiguous. Is the denominator the number of people visiting the ED or the number of people with foreign body ingestions?

Reply 2: The sentence refers to the ratio of patients who visited the emergency department due to foreign body ingestion out of the total number of emergency department visits. It highlights that while the number of emergency department visits decreased during the COVID-19 period, particularly for infectious diseases, the rate of patients visiting the emergency department due to foreign body ingestion remained unchanged. However, we decided to remove this point as it could potentially cause confusion.

Change in the text: We removed the following sentence: "but the proportion of patients visiting the hospital due to foreign body ingestion increased 2.6-fold." (see Page 04, line 57)

Methods

Comment 3: If the authors hypothesize that staying at home was associated with a change in foreign ingestion patterns, why was the COVID period defined to start in January 2020? When did stay-at-home orders/ social distancing start?

Reply 3: The pandemic declaration was made in March, but the cases in Korea started in January 2020, and there were warnings and cautions through various media outlets even before there were any cases in Korea. Korea, which experienced MERS in 2015, had already been implementing strong social distancing and emphasizing personal hygiene such as wearing masks and washing hands since January. Even two

months before the pandemic declaration, the same measures were already in place as during the pandemic. South Korea was already under its influence.

In order to be precise in our meaning, we removed "pandemic" from the title and changed it to "COVID-19 period". We also removed the word 'pandemic' or modified it to 'period' in several places in the text.

Change in the text:

1. Title: Foreign Body Ingestion Trends in Children in the Daegu–Kyungpook Province, Korea Before and During the COVID-19 period: A Multicenter Retrospective Study
2. Page 03, line 36
3. Page 03, line 39
4. Page 05, Highlight Box
5. Page 06, line 71: We deleted the following sentence. ‘On March 11, 2020, the World Health Organization declared the coronavirus disease 2019 (COVID-19) a pandemic.’
6. Page 11, line 181
7. Page 06, line 183
8. Page 13, line 233
9. Page 13, line 241
10. Page 16, line 291

Comment 4: Please clarify why foreign body ingestions included foods. Did participants with food ingestions have evidence of eosinophilic esophagitis?

Reply 4: It was not determined whether the patients had eosinophilic esophagitis. Food was categorized as a foreign body if it considered laryngoscopic or endoscopic removal, such as a lump of food stuck in the throat, peach pits, plum pits, chicken bones, blue crab or shrimp shells. From the emergency physician's point of view, the method of approach is similar regardless of the type of object to be considered for removal. In order to reduce misunderstanding, the food classified as a foreign body was defined.

Changes in the text: Food is defined as a visit to the hospital for consideration of removal due to a persistent foreign body sensation except fishbone. For example, peach pits, plum pits, chicken bones, blue crab or shrimp shells, etc. (see Page 07, line 104)

Comment 5: Similar to the abstract, the definition of rate in the methods is confusing. The authors argue that the population is in decline and, therefore, frequencies cannot be utilized. Please define the rate more clearly. Is it the number of healthcare visits for foreign body ingestions per 100,000 people?

Reply 5: In our study, we defined the rate as the number of emergency department (ED) visits for foreign body ingestions per 100,000 people in the relevant age group. We used this definition to account for changes in population size and age distribution over time. As you mentioned, we noted that South Korea is experiencing a decline in its population due to reduced fertility rates. Therefore, we chose to use rates rather than frequencies to compare the occurrence of foreign body ingestions during the COVID-19 period with that in the pre-COVID-19 period.

Changes in the text:

To clarify the meaning, the following sentence was revised in the Methods section. ‘Thus, the frequency of foreign body ingestion in patients visiting seven tertiary referral hospitals during the COVID-19 period was compared by investigating the rate per 100,000 people in Daegu-Kyungpook province of the relevant age.’ (see Page 07, line 111)

Results

Comment 6: For endoscopic removal, is this the total number of endoscopies compared between the two periods? How did the number of ingestions factor into this analysis? Were patients presenting with foreign body ingestions more likely to require endoscopy in the COVID period?

Reply 6: We describe in the results section the rate of hospital visits for EGD for foreign bodies per 100,000 people, not the total number. There was a trend toward increased ingestion of multiple magnets, disk batteries, coins, and superabsorbent polymers requiring endoscopic removal during COVID-19, but this was not statistically significant.

Discussion/Conclusion

Comment 7: Is the proportion of emergency room/outpatient care visits for foreign body ingestions a finding from this study? It is referred to in the abstract and discussion but not in the results.

Reply 7: This is the ratio of patients who visited the emergency department because of foreign body ingestion to total emergency department visits. Using reference 18 data, we simply compared the ratio of foreign body ingestions to total ED visits (pre-covid 2%; post-covid 5.2%). We've made the following changes to the discussion section.

Changes in the text:

Jang et al. (18) reported the number of patients visiting pediatric emergency rooms in the Daegu–Kyungpook Province decreased sharply, by 62.0%, from an average of 21,815 in 2018–2019 to 8,097 in 2020. Combining data from pediatric ED visits in the same region and period with the number of foreign body ingestion in this study, 878 cases out of 43630 patients (2.0%) during the pre-COVID period and 417 cases out of 8097 patients (5.2%) during the COVID period resulted in a relative increase of 2.6 times. (see Page 11 line 198 ~ Page 12 line 203)

Comment 8: Given the primary outcome of infections, the authors should comment on the immunization rates of the participants. Was there a difference in the immunizations completed in the zinc vs. placebo arms?

Reply 8: The data we investigated did not include any information related to vaccination.

Comment 9: The importance of lines 300-313 is unclear. Consider deleting or shortening this paragraph.

Reply 9: We have shortened the content as you commented.

Change in the text: In many cases, most gastrointestinal foreign bodies are discharged spontaneously without intervention. However, ingestions involving button batteries, fidget spinners,

neodymium magnets, laundry detergent pods, and superabsorbent polymers should be carefully treated, because they can cause severe damage to the body if swallowed (32).

(see Page 14, line 264)

Comment 10: Consider deleting the paragraph regarding age trends in the discussion since this was not statistically significant.

Reply 10: We've deleted the paragraph regarding age trends in the discussion as suggested.

Change in the text: (see Page 12, line 210)

Reviewer B

Congratulations on a well-done multicenter retrospective study of foreign body ingestions during and before COVID. This is an interesting question that you addressed nicely. A few minor revisions:

Comment 1: Please adjust statements about trends to be more clear about significance. For example, it is stated that foreign body ingestion increased in the 0-3 and 4-6 year old groups ($p=0.45$, $p=0.13$). These are not statistically - or likely clinically - significant. Please revise statements in the abstract and results that may mislead the reader to think that nonsignificant trends were in fact significant. Same goes for the statement about relative proportion of food item ingestions. While an imperfect cutoff, generally using a p value cutoff of <0.05 is accepted as significant.

Reply 1: To clarify the wording about statistical significance, the sentence has been modified to read as follows.

Change in the text: Compared to the pre-COVID-19 period, there were no statistically significant differences in the foreign body ingestion in the all groups during the COVID-19 period. (0–3, 4–6, 7–15 years; $P = 0.45, 0.13, 0.35$). In addition, when compared according to age and dividing ingested items into food (fishbone + food) and non-food items, there were no statistically significant differences in the proportion of cases in the COVID period in all age groups (food; non-food $P = 0.15$; $P = 0.12$) (see Page 10, line 166)

Comment 2: An editorial point - line 128 - redundant use of 'included' phrase - would delete 'was included in this study'.

Reply 2: As you commented, we have modified the sentence.

Change in the text: Thus, the study population included pediatric patients aged 0–15 years,(see Page 7, line 113)

Reviewer C

I enjoyed reviewing “Foreign Body Ingestion Trends ...” and look forward to seeing it published. However, the manuscript requires some important revisions before it is acceptable for publication.

My two most important concerns with this manuscript were:

Comment 1: The authors have treated the entire calendar year of 2020 as the “COVID-19 period”. However, as the authors note on line 75, “on March 11, 2020, the World Health declared the coronavirus disease 2019 (COVID-19) a pandemic.” Thus, over 19% of what they are treating as the COVID-19 period was in fact pre-pandemic. I would suggest that, in looking at the effects of the pandemic, the authors begin their “COVID-19 period” on March 11, 2020, or perhaps even a bit later, to give some time for people to have adjusted their lifestyles. They could still use a one-year study period, and use a corresponding baseline period as a comparison group. If the authors believe that the first 70 days of 2020 were some sort of transition period, they should leave those days out of the analysis altogether, including them neither in the study period nor in the baseline period.

Reply1: The pandemic declaration was made in March, but the cases in Korea started in January 2020, and there were warnings and cautions through various media outlets even before there were any cases in Korea. Korea, which experienced MERS in 2015, had already been implementing strong social distancing and emphasizing personal hygiene such as wearing masks and washing hands since January. Even two months before the pandemic declaration, the same measures were already in place as during the pandemic. South Korea was already under its influence.

In order to be precise in our meaning, we removed "pandemic" from the title and changed it to "COVID-19 period". We also removed the word 'pandemic' or modified it to 'period' in several places in the text.

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6. Page 11, line 181
7. Page 06, line 183
8. Page 13, line 233
9. Page 13, line 241
10. Page 16, line 291

Comment 2: On lines 144-145, the authors note that statistical significance required $P < 0.05$. That is standard stuff. However, the authors consider differences with larger P values to be genuine differences. The authors describe two kinds of differences, calling some differences “significant” and others simply differences. See, for example, the paragraph that begins on line 192, which contains many examples of

things that “increased” or “decreased” despite being associated with $P > 0.05$. The authors, instead, should note that $P > 0.05$ means that they were unable to prove that there was a difference, and stop there.

Reply 2: To clarify the expression of statistical significance, the sentence was modified as follows.

Change in the text:

Compared to the pre-COVID-19 period, there were no statistically significant differences in the foreign body ingestion in the all groups during the COVID-19 period. (0–3, 4–6, 7–15 years; $P = 0.45, 0.13, 0.35$). In addition, when compared according to age and dividing ingested items into food (fishbone + food) and non-food items, there were no statistically significant differences in the proportion of cases in the COVID period in all age groups (food; non-food $P = 0.15; P = 0.12$) (see Page 10, line 166)

Other comments / concerns:

Comment 3: Lines 25-26: We need a reference that documents that children spent more time at home during the pandemic period.

Reply 3: As you commented, we have inserted references 8,9,10 in line 87 and 190.

Comment 4: Lines 45, 119: When does “food” become a foreign body? For me, it is when it causes trouble. I doubt the actual “food ingestion rate” (meaning, usual meals) changed during the pandemic times.

Reply 4: Food was categorized as a foreign body if it considered laryngoscopic or endoscopic removal, such as a lump of food stuck in the throat, peach pits, plum pits, chicken bones, blue crab or shrimp shells. From the emergency physician's point of view, the method of approach is similar regardless of the type of object to be considered for removal. In order to reduce misunderstanding, the food classified as a foreign body was defined.

Changes in the text: Food is defined as a visit to the hospital for consideration of removal due to a persistent foreign body sensation except fishbone. For example, peach pits, plum pits, chicken bones, blue crab or shrimp shells, etc. (see Page 07, line 104)

Comment 5: Line 49: I suggest the authors do not introduce new results (2.6-fold) in the Conclusions section of the Abstract.

Reply 5: As you commented, we have removed that content.

Change in the text: (see Page 04, line 57 and Page 16, line 291)

Comment 6: I applaud the author’s accounting for population changes during the study period. (lines 125-130 and 159-160). However, it would improve the paper to give both the actual data, as was done, but also the “annual occurrence rate, per 100,000 persons” adjusted results, on lines 157-162. Is this what we are told was 66.7, on line 217? If so, please move that to the Results section.

Reply 6: As you commented, we moved ‘the occurrence rate per 100,000’ to the results section and modified Table 2.

Change in the text: The annual occurrence rate, per 100,000 persons, of foreign body ingestion in children

under the age of 15 years in the Daegu–Kyungpook Province during the COVID-19 period was not different from that in the pre-COVID-19 period (66.7 per 100,000 persons, $P = 0.999$). (see Page 09, line 142)

Reviewer D

This study presented the trends in foreign body ingestions in a province of South Korea during the year 2020 compared to the prior 2 years. Overall, my view is that this manuscript requires significant overhaul in the structure and organization of the text as well as presentation of the results and discussion. There is a lot of insignificant and very tangential information presented at which point the key themes the authors may want to present are lost. The authors also require references and citations for many claims made in the text which are not universally known.

Comment 1: Overall, I would classify January and February of 2020 as the pre-COVID period given as the authors stated, the COVID-19 pandemic was declared on March 11th 2020. If the first COVID patient was detected in February, then at least January 2020 falls into the pre-pandemic period. Therefore, using January - December 2020 as the pandemic period and performing statistical analyses off of these is not representative of the goals and implications of the paper.

Reply 1: The pandemic declaration was made in March, but the cases in Korea started in January 2020, and there were warnings and cautions through various media outlets even before there were any cases in Korea. Korea, which experienced MERS in 2015, had already been implementing strong social distancing and emphasizing personal hygiene such as wearing masks and washing hands since January. Even two months before the pandemic declaration, the same measures were already in place as during the pandemic. South Korea was already under its influence.

In order to be precise in our meaning, we removed "pandemic" from the title and changed it to "COVID-19 period". We also removed the word 'pandemic' or modified it to 'period' in several places in the text.

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8. Page 13, line 233
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Comment 2: Citations are needed for the statements in the introduction on page 1 lines 85-90.

Reply 2: As you commented, we have inserted references 2,3,4 in line 81.

Comment 3: In the methods section, lines 118-120, I would be interested to know more about why these 8 categories were selected and identified.

Reply 3: We classified foreign bodies based on the categories specified in the NASPGHAN and ESPGHAN guidelines for foreign body removal. Additionally, based on our analysis of the research data, we classified 'Fish bone' and 'Food' separately due to their high proportion in foreign bodies.

Comment 4: Statement in lines 125-126 statement requires citation to back up the population frequency identified and used to perform statistical analyses.

Reply 4: As you commented, we have inserted references 12, 13 in line 110, 113.

Comment 5: In regards to Study participants, line 132, I would like to know why patients 0-15 years of age were selected and pediatric patients 15-18 years of age were excluded. This inclusion/exclusion criteria was never defined or stated.

Reply 5: In the Daegu-Gyeongbuk province, most pediatric departments are in charge of children up to 15 years old, so the data was collected up to 15 years old. We've added this to the Inclusion criteria.

Change in the text: In the Daegu-Gyeongbuk province, most pediatric departments are in charge of children up to 15 years old, so the data was collected up to 15 years old. (see Page 08, line 120)

Comment 6: In regards to foreign body removal method, lines 182-184 – did the authors hypothesize there would be a difference and if so why? This analysis does not make sense unless there was an assumption that foreign body removal methods would change during the pandemic.

Reply 6: We thought that if the environment of foreign body ingesting changes, the type of foreign body may change, and the method of removal may change according to the foreign body type type. We observed an increase in the swallowing of disc battery, magnet, superabsorbent polymer, and coin, and an increase in endoscopic foreign body removal, but there was no statistical significance."

Comment 7: There is a lot of insignificant data reported in lines 192-199 which do not add to the paper but rather show that nothing changed. Stating that there were increased or decreased trends with the lack statistical significance is misleading.

Reply 7: To clarify the wording about statistical significance, the sentence has been modified to read as follows.

Change in the text:

: Compared to the pre-COVID-19 period, there were no statistically significant differences in the foreign body ingestion in the all groups during the COVID-19 period. (0–3, 4–6, 7–15 years; $P = 0.45, 0.13, 0.35$).

In addition, when compared according to age and dividing ingested items into food (fishbone + food) and non-food items, there were no statistically significant differences in the proportion of cases in the COVID period in all age groups (food; non-food $P = 0.15$; $P = 0.12$) (see Page 10, line 166)

Comment 8: There are a lot of assumptions without backing evidence made throughout the discussion, particularly lines 236-242. The authors may surmise that certain things could have led to their results, however assumptions stated as facts require references to be supported.

Reply 8: We agree with you and have removed that part as unsubstantiated speculation can undermine the credibility of the text.

Change in the text: (see Page 12, line 215)

Comment 9: Overall, the organization of the manuscript requires overhaul to decide on key pertinent points, and the discussion requires more structure with references to support claims.

Reply 9: We've added references and made revisions to the text based on feedback from five reviewers.

Reviewer E

In this report, Suk et al. describes Foreign Body Ingestion (FBI) Trends in Children in the Daegu–Kyungpook Province Before and During the COVID-19 Pandemic: A Multicenter Retrospective Study. The idea itself is interesting, but it has some scientifically serious problems.

Comment 1: First, The FBI rate in children did not differ during the COVID-19 period compared to that in the pre-COVID-19 period. It means occurrence rate of FBI in children seems to be not different. It does not mean anything that the ratio of patients with FBI increased due to the decrease in the number of patients other than FBI.

Reply 1: That refers to the ratio of patients who visited the emergency department due to foreign body ingestion out of the total number of emergency department visits. It highlights that while the number of emergency department visits decreased during the COVID-19 period, particularly for infectious diseases, the rate of patients visiting the emergency department due to foreign body ingestion remained unchanged. However, we decided to remove this point as it could potentially cause confusion.

Change in the text: We have removed the following sentence: "but the proportion of patients visiting the hospital due to foreign body ingestion increased 2.6-fold." (see Page 04, line 57 and Page 16, line 291)

Comment 2: Second, there is no discussion why FBI rate in children did not differ during the COVID-19 period compared to that in the pre-COVID-19 period. The hypothesis described in Introduction was wrong and the reason is not properly addressed.

Reply 2: As you commented, we added the following sentence to the discussion section.

Change in the text: Despite the increase in time spent at home, where most foreign body ingestions occur, there was no significant difference in the rate per 100,000 ED visits for foreign body ingestion, as well as by type of foreign body, between the pre- and post-COVID-19 periods. This may be related to the fact that children are spending more time at home, which increases their exposure to foreign objects, and parents are spending more time at home with limited outdoor activities. Parents who spend more time at home with their children may have had more time to care for their children and may have had better control of swallowable foreign bodies. (see Page 11, line 190)