

# Gastric lymphoma and spontaneous remission associated with co-infection of COVID-19 and undefined typical bacterial agent.

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## Case Report

**Keywords:** Gastric lymphoma, non-Hodgkins *lymphoma*, *Hodgk*  $\epsilon$  s lymphoma, SARS-CoV 2, COVID-19

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# Abstract

**Background:** Article shows a clinical experience with the patient with primary gastric lymphoma, and it shows reduction of the lymphoma condition into the spontaneous remission, after community-acquired pneumonia, which was associated with co-infection of COVID-19 and undefined typical bacterial agent. The positive response happened on the standard antibacterial and basic symptomatically treatment.

**Case presentation:** A 65-years-old woman was admitted by ambulance to the emergency department with sever condition. In time of hospitalization the patient has been diagnosed with primary gastric lymphoma, ulcer form, with signs of ongoing capillary bleeding, chronic bronchitis, diabetes militias type 2 complicated hypoglycaemic condition associated with metformin, thrombocytopenic syndrome, normochromic anaemia. The condition was confirmed by laboratory and instrumental investigation.

**Conclusion:** Article shows extremely positive response up to disappearing of ulcer, which was associated with lymphoproliferative disorder. The condition of that was associated with highly cytokines production with anti-tumor effect.

## Background

Primary gastric lymphoma (PGL) is an uncommon condition, accounting for less than 15% of gastric malignancies and about 2% of all lymphomas. The stomach is a more common extra nodal site for lymphomas. It means for lymphomas originate elsewhere and metastasis to the stomach. It is also the most common source of lymphomas in the gastrointestinal tract.

SARS-CoV 2 is a strain of coronavirus that causes COVID-19. It is the main respiratory illness responsible for the ongoing COVID-19 pandemic, which started registration since 2019.

In the article, a clinical experience is shared with the patient who was diagnosed with gastric lymphoma, which was confirmed by data information of esophagogastroduodenoscopy (EGS) and stomach biopsy result. Also, the article shows reduction of the gastric lymphoma condition after community-acquired pneumonia associated with co-infection of COVID-19 and undefined typical bacterial agent, and positive response of standard antibacterial and basic symptomatically treatment. There are observed remission of the diseases condition during coronavirus disease (COVID-19) and comparison between similar experience from other countries with other cases of Hodking's lymphoma and non-Hodking`s lymphoma.

## Case Presentation

A 65-years-old woman was admitted by ambulance to the emergency department with complaints of dizziness, nausea, bruisers in the body, severe general weakness, malaise, appetite loss, fainting, general weakness in October 2020. In time of hospitalization the patient has been diagnosed with PGL, ulcer form, with signs of ongoing capillary bleeding, chronic bronchitis, diabetes militias type 2 complicated hypoglycaemic condition associated with metformin, thrombocytopenic syndrome, normochromic

anaemia. Data information of the patient were confirmed by EGD with stomach biopsy and chest x-ray (CXR) in October 2020, which shows morphological picture of gastric lymphoproliferative disorder and chronic bronchitis. The patient has got basically symptomatic treatment - ciprofloxacin 200mg/100ml x 2 times daily for 13 days, omeprazole 20mg x 2 times daily, glucose solution 40%-20ml a time for a day, glucose solution 5%-500ml a time daily for 3 days, correction with metformin dose. Afterward the patient was discharged with disease stabilization and slightly positive response to get a consultation from oncologist for initiate specific treatment – immunochemical treatment in October 2020.

In time of secondary care, the patient hasn't got consultation from oncologist. Next hospitalization condition was in January 2021 – after 2 months of previous hospitalization. The patient was delivered with same complaints. There was community-acquired pneumonia condition, which was associated with co-infection of COVID-19 and undefined bacterial agents. Data information of co-infection was confirmed by CXR and lungs computer tomography (CT) scans. CXR shows right sided multisegmented pneumonia, which were on the right in the middle and lower zone of the lungs and infiltrative opacification contours. CT scans of the lungs shows right sided upper lobe pneumonia and pulmonary fibrosis is on both sides. There were detected pulmonary fibrosis along the periphery, fibrous cords, and infiltration of upper lobe on the right. (red arrows are on Fig. 1, 2).

In time of hospitaliation were also scheduled laboratory testes and other instrumental investigations for differential diagnosis and excluding complication of disease. Polymerase chain reaction (PCR) of SARS-CoV2 nasopharyngeal test, ELISA of SARS-CoV2 ratio immunoglobulin M (IgM) and immunoglobulins G (IgG) were showed negative result. TB microscopic, Xpert MTB/RIF, culturology of sputum also were showed negative result. EGD were repeated and showed chronical superficial gastritis. At last, the patient treatment consists of combination of 2 antibioticly and symptomatically treatment – cefotaxime 1,0 x 4 times daily for 7 days, azithromycin 500mg a time daily for 5 days. There were no glucocorticoids (GCS) and immunochemical treatment. The patient was discharged with highly positive effect without specific treatment of gastric lymphoma and COVID-19. The laboratory dynamic of patient condition showed highly positive immune response with faster decreasing of inflammatory markers (Fig. 3). The main condition of the process was classified resemble of gastric lymphoma remission.

## Discussion

At the case of British Society for Haematology with SARS-CoV-2-induced remission of Hodgkin`s lymphoma is showed a hypothesis of the pathophysiology action mechanism, which include cross-reactivity of pathogen-specific T-cells. In the other way cross-reactivity is described in non-Hodkin`s lymphoma with anti-tumors immune response after concurrent infection.

SARS-CoV-2 uses the viral spike (S) protein for host-cell attachment and entry through binding of ACE-2 (angiotensin-converting enzyme 2). It is important action mechanism of the pathology process into cells, which may be the clue of the case explanation in the patient situation. As known the other bacterial infection like H. pylori may regulate gastric inflammation and associated cytokines by ACE-2.

In theory, the explanation resembles on mechanism of provoking cytokine releasing, which could enable attracting tumor microenvironment (TME) immune cells: this could be sufficient to explain an anti-tumor effect. From the other side it may be a position of action mechanism, which include cross-reactivity of pathogen – specific T-cells with tumor antigens and natural killer (NK) cells activation by inflammatory cytokines produced in response to infection.

## **Conclusion**

The patient has got extremely positive response up to disappearing of ulcer, which was associated with lymphoproliferative disorder. The condition of that was associated with highly cytokines production with anti-tumor effect. When was expected fully decompensation and negative effect of patient condition. There was reliving from undefined typical bacterial pathogen and spontaneous remission of gastric lymphoma without specific treatment of lymphoproliferative disorder.

## **Declarations**

### **Ethics approval and consent to participate**

Not applicable

### **Consent for publication**

Written informed consent was obtained from the patient for publication of this case report and any accompanying images. A copy of the written consent is available for review by the Editor-in-Chief of this journal

### **Availability of data and materials**

### **Competing interests**

The authors declare that they have no competing interests

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### **Authors' contributions**

1. Kurmanova Gaukhar Medeubaevna has explained whole patient condition and remission, from position of immunology, oncology and hematology.

2. Yerkebulan Nurlanovich Bossatbekov lead the patient in the hospitalization time and pointed the case situation, also design the work.
3. Zhanna Maxutovna Alimanova has explained whole patient condition and remission, as general practitioner, and has led the patient at first hospitalization time.
4. Sholpan Abilkassimovna Tankayeva has analyzed the situation by differential diagnosis criteria, as a pulmonologist from the respiratory diseases.
5. Bugibaeva Akbota Berdalievna has helped with review of the case condition, interpreted data analysis
6. Abhishek Sarawata, Kajal Singh, Fuza Adhur Manhuvalappa Abbas, Neetu Singh are students, who helped to analyze data base information of laboratory and instrumental investigation, they prepared figure

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## Figures

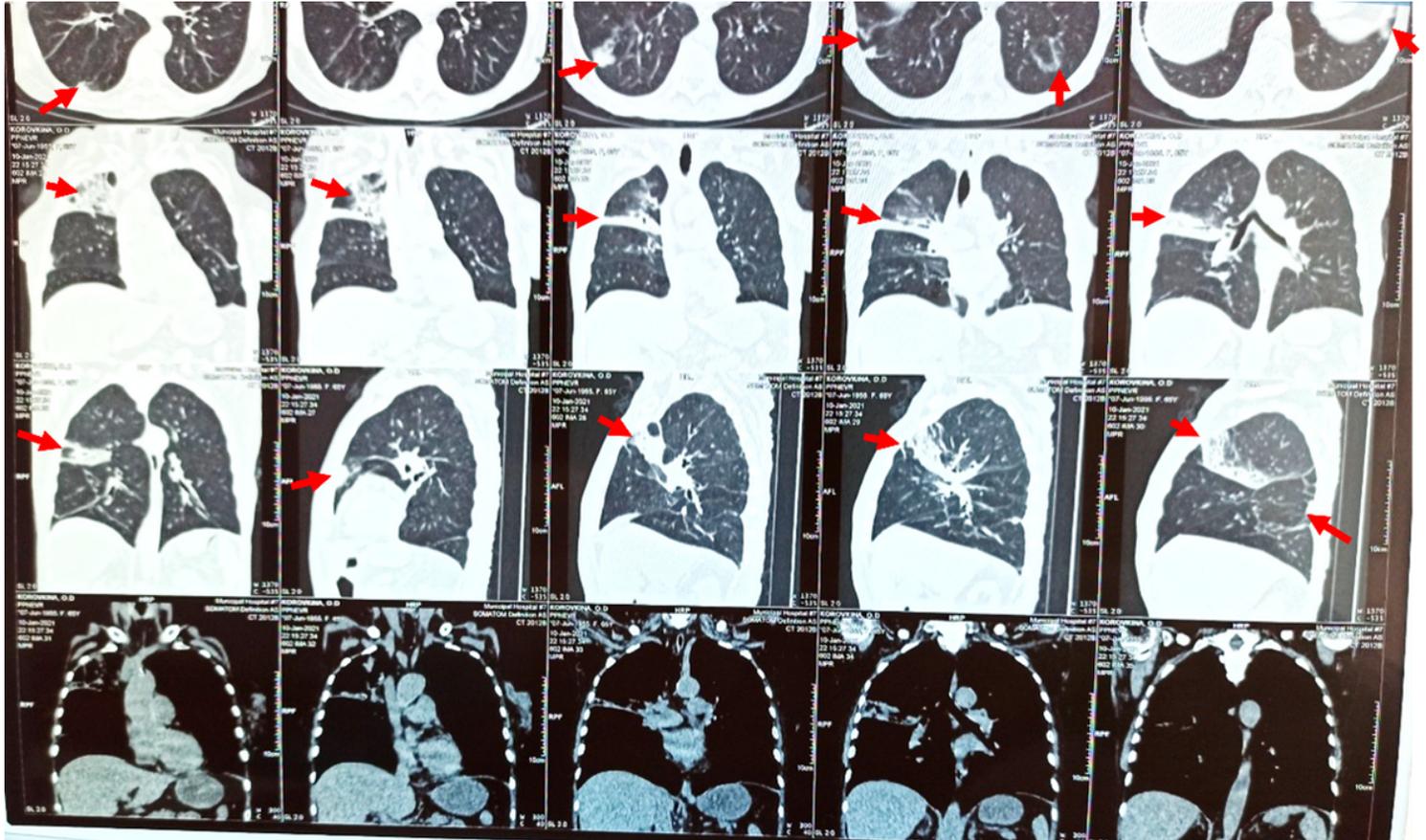


Figure 1

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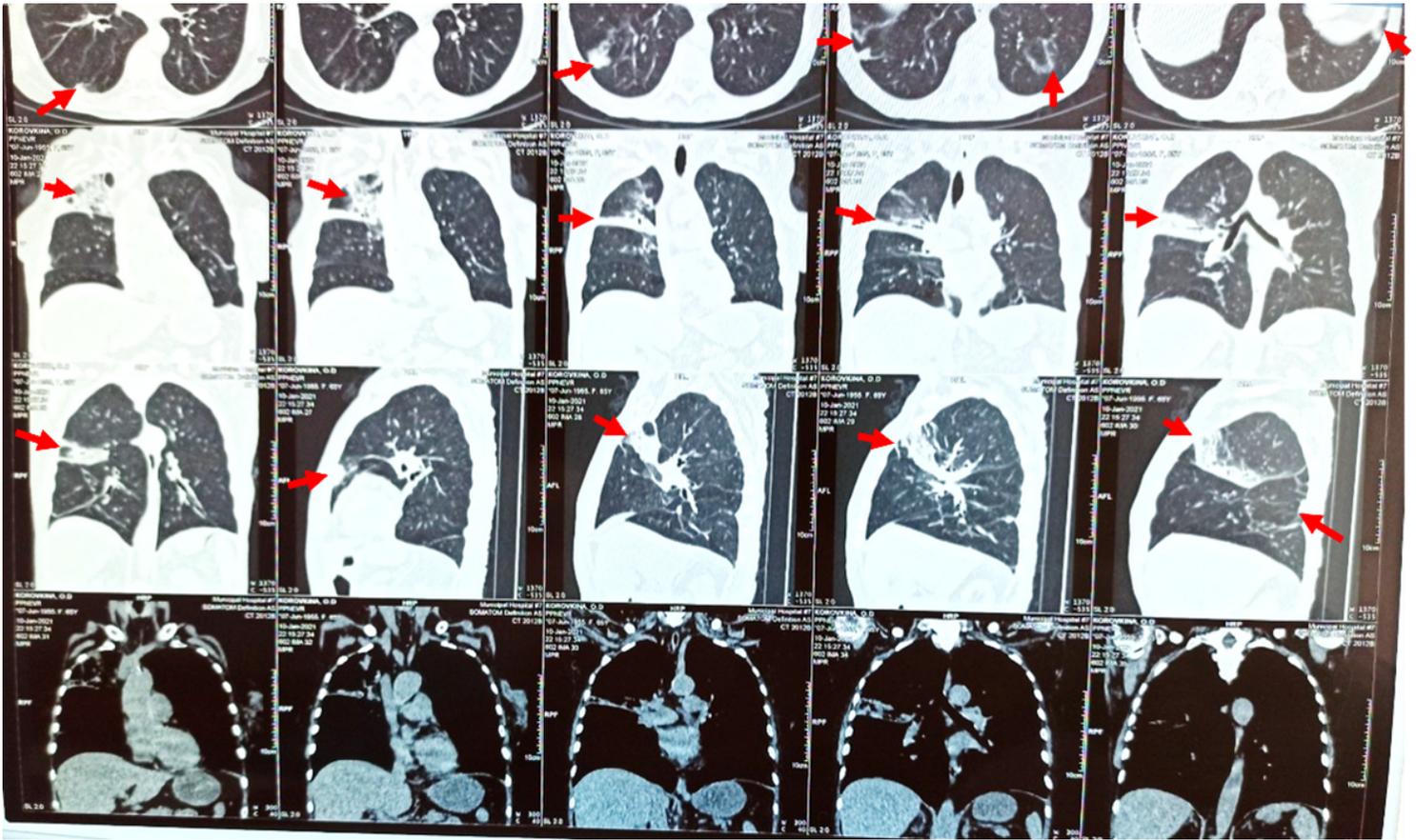


Figure 2

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Complete blood count							
Time of discharge in October 2020	10.01.2021	11.01.2021	14.01.2021	18.01.2021	21.01.2021	Reference ranges	
RBC	2.82	3.75	3.23	2.99	3.17	2.94	3.9-4.7 x 10 <sup>12</sup> /L
Hb	85	115	100	91	97	89	115-160 g/L
WBC	-	14.89	9.54	6.94	7.4	8.36	4-9 x 10 <sup>12</sup> /L
PLT	62	357	362	350	-	353	140-400 x 10 <sup>9</sup> /L
HTC	-	33.8	29.9	28.4	30.6	28.7	35.5-44.9%
Segmented neutrophiles	69.5	90.5	84.6	69.5	70	71.8	40-60%
Lymphocytes	1.17	0.60	0.82	1.45	1.53	1.63	1-4 x 10 <sup>9</sup> /L
Monocyte	8.1	5.4	6.6	7.8	7.8	7.5	2-8%
Inflammation markers							
CRP	-	653.5	-	206.04	26.14	20,85	0-5 mg
D-dimer	21.19	1,74	1.27	-	-	-	0,5 mg/L
ESR	-	75	74	52	68	62	20 mm/H
Fibrinogen	-	7.74	-	7.67	-	-	2-4 g/L
PCT	-	0,831	-	-	-	-	0,5-2,5 ng/mL
RBC – red blood cells, Hb – hemoglobin, WBC – white blood cells, PLT – platelets, HTC – hematocrit, CRP – C-reactive protein, ESR – Erythrocyte segmentation rates, PCT – procalcitonin.							

### Figure 3

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