

Auto-appendectomy in the Antarctic: case report

Vladislav Rogozov, *consultant anaesthetist*^{1,2}, **Neil Bermel**, *professor of Russian and Slavonic studies*³

¹ Department of Anaesthetics, Sheffield Teaching Hospitals, Sheffield S10 2JF, ² Department of Anaesthesiology and Resuscitation, Cardiac Centre, Institute of Clinical and Experimental Medicine, Prague, 140 21, Czech Republic, ³ Department of Russian and Slavonic Studies, University of Sheffield, Sheffield S37RA

Correspondence to: V Rogozov v.rogozov@sheffield.ac.uk

The Russian surgeon Leonid Rogozov's self operation, undertaken without any other medical professional around, was a testament to determination and the will to life

"A job like any other, a life like any other"

—Leonid Rogozov

The ship *Ob*, with the sixth Soviet Antarctic expedition on board, sailed from Leningrad on 5 November 1960. After 36 days at sea she decanted part of the expedition onto the ice shelf on the Princess Astrid Coast. Their task was to build a new Antarctic polar base inland at Schirmacher Oasis and overwinter there. After nine weeks, on 18 February 1961, the new base, called Novolazarevskaya, was opened.

They finished just in time. The polar winter was already descending, bringing months of darkness, snowstorms, and extreme frosts. The sea had frozen over. The ship had sailed and would not be back for a year. Contact with the outside world was no longer possible. Through the long winter the 12 residents of Novolazarevskaya would have only themselves to rely on.

One of the expedition's members was the 27 year old Leningrad surgeon Leonid Ivanovich Rogozov. He had interrupted a promising scholarly career and left on the expedition shortly before he was due to defend his dissertation on new methods of operating on cancer of the oesophagus. In the Antarctic he was first and foremost the team's doctor, although he also served as the meteorologist and the driver of their terrain vehicle.

29 April 1961

After several weeks Rogozov fell ill. He noticed symptoms of weakness, malaise, nausea, and, later, pain in the upper part of his abdomen, which shifted to the right lower quadrant. His body temperature rose to 37.5°C.^{1 2} Rogozov wrote in his diary:

"It seems that I have appendicitis. I am keeping quiet about it, even smiling. Why frighten my friends? Who could be of help? A polar explorer's only encounter with medicine is likely to have been in a dentist's chair."

As a surgeon Rogozov had no difficulty diagnosing acute appendicitis. In this situation, however, it was a cruel trick of fate. He knew that if he was to survive he had to undergo an operation. But he was in the frontier conditions of a newly founded Antarctic colony on the brink of the polar night. Transportation was impossible. Flying was out of the question, because of the snowstorms. And there was one further problem: he was the only physician on the base.

30 April

All the available conservative treatment was applied (antibiotics, local cooling), but the patient's general condition was getting worse: his body temperature rose, vomiting became more frequent.^{1 2}

"I did not sleep at all last night. It hurts like the devil! A snowstorm whipping through my soul, wailing like a hundred jackals. Still no obvious symptoms that perforation is imminent, but an oppressive feeling of foreboding hangs over me . . . This is it . . . I have to think through the only possible way out: to operate on myself . . . It's almost impossible . . . but I can't just fold my arms and give up.

"18.30. I've never felt so awful in my entire life. The building is shaking like a small toy in the storm. The guys have found out. They keep coming by to calm me down. And I'm upset with myself—I've spoiled everyone's holiday. Tomorrow is May Day. And now everyone's running around, preparing the autoclave. We have to sterilise the bedding, because we're going to operate.

"20.30. I'm getting worse. I've told the guys. Now they'll start taking everything we don't need out of the room."

Preparation for the operation

Following Rogozov's instructions, the team members assembled an improvised operating theatre. They moved everything out of Rogozov's room, leaving only his bed, two tables, and a table lamp. The aerologists Fedor Kabot and Robert Pyzhov flooded the room thoroughly with ultraviolet lighting and sterilised the bed linen and instruments.

As well as Rogozov, the meteorologist Alexandr Artemev, the mechanic Zinovy Teplinsky, and the station director, Vladislav Gerbovich, were selected to undergo a

sterile wash. Rogozov explained how the operation would proceed and assigned them tasks: Artemev would hand him instruments; Teplinsky would hold the mirror and adjust the lighting with the table lamp; Gerbovich was there in reserve, in case nausea overcame either of the assistants. In the event that Rogozov lost consciousness, he instructed his team how to inject him with drugs using the syringes he had prepared and how to provide artificial ventilation. Then he gave Artemev and Teplinsky a surgical wash himself, disinfected their hands, and put on their rubber gloves for them.

When the preparations were complete Rogozov scrubbed and positioned himself. He chose a semi-reclining position, with his right hip slightly elevated and the lower half of the body elevated at an angle of 30°. Then he disinfected and dressed the operating area. He anticipated needing to use his sense of touch to guide him and thus decided to work without gloves.

The operation

The operation began at 2 am local time. Rogozov first infiltrated the layers of abdominal wall with 20 ml of 0.5% procaine, using several injections. After 15 minutes he made a 10-12 cm incision. The visibility in the depth of the wound was not ideal; sometimes he had to raise his head to obtain a better view or to use the mirror, but for the most part he worked by feel. After 30-40 minutes Rogozov started to take short breaks because of general weakness and vertigo. Finally he removed the severely affected appendix. He applied antibiotics in the peritoneal cavity and closed the wound. The operation itself lasted an hour and 45 minutes.^{1 2} Partway through, Gerbovich called in Yuri Vereshchagin to take photographs of the operation.

Gerbovich wrote in his diary that night³:

"When Rogozov had made the incision and was manipulating his own innards as he removed the appendix, his intestine gurgled, which was highly unpleasant for us; it made one want to turn away, flee, not look—but I kept my head and stayed. Artemev and Teplinsky also held their places, although it later turned out they had both gone quite dizzy and were close to fainting . . . Rogozov himself was calm and focused on his work, but sweat was running down his face and he frequently asked Teplinsky to wipe his forehead . . . The operation ended at 4 am local time. By the end, Rogozov was very pale and obviously tired, but he finished everything off."



After the operation

Afterwards Rogozov showed his assistants how to wash and put away the instruments and other materials. Once everything was complete, he took sleeping tablets and lay down for a rest. The next day his temperature was 38.1°C; he described his condition as "moderately poor" but overall he felt better. He continued taking antibiotics. After four days his excretory function came back to normal and signs of localised peritonitis disappeared. After five days his temperature was normal; after a week he removed the stitches.^{1 2} Within two weeks he was able to return to his normal duties and to his diary.

8 May 1961

"I didn't permit myself to think about anything other than the task at hand. It was necessary to steel myself, steel myself firmly and grit my teeth. In the event that I lost consciousness, I'd given Sasha Artemev a syringe and shown him how to give me an injection. I chose a position half sitting. I explained to Zinovy Teplinsky how to hold the mirror. My poor assistants! At the last minute I looked over at them: they stood there in their surgical whites, whiter than white themselves. I was scared too. But

when I picked up the needle with the novocaine and gave myself the first injection, somehow I automatically switched into operating mode, and from that point on I didn't notice anything else.

"I worked without gloves. It was hard to see. The mirror helps, but it also hinders—after all, it's showing things backwards. I work mainly by touch. The bleeding is quite heavy, but I take my time—I try to work surely. Opening the peritoneum, I injured the blind gut and had to sew it up. Suddenly it flashed through my mind: there are more injuries here and I didn't notice them . . . I grow weaker and weaker, my head starts to spin. Every 4-5 minutes I rest for 20-25 seconds. Finally, here it is, the cursed appendage! With horror I notice the dark stain at its base. That means just a day longer and it would have burst and . . .

"At the worst moment of removing the appendix I flagged: my heart seized up and noticeably slowed; my hands felt like rubber. Well, I thought, it's going to end badly. And all that was left was removing the appendix . . .

"And then I realised that, basically, I was already saved."

Leaving Antarctica

More than a year later the Novolazarevskaya team left Antarctica, and on 29 May 1962 their ship docked at Leningrad harbour. The next day Rogozov returned to his work at the clinic. Shortly thereafter he successfully defended his dissertation. He worked and taught in the Department of General Surgery of the First Leningrad Medical Institute. He never returned to the Antarctic and died in St Petersburg, as Leningrad had by then become, on 21 September 2000.

The boundary of the humanly possible

There are some references to auto-appendectomies in the literature. The earliest one was possibly that performed by Dr Kane in 1921 (although the operation was completed by his assistants).^{4 5} We know that Rogozov had not heard about it before he performed his operation.

Rogozov's self operation was probably the first such successful act undertaken in the wilderness, out of hospital settings, with no possibility of outside help, and without any other medical professional around. It remains an example of determination and the human will for life. In later years Rogozov himself rejected all glorification of his deed. When thoughts like these were put to him, he usually answered with a smile and the words: "A job like any other, a life like any other."⁶

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Competing interest: VR is a son of Leonid Rogozov.

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