

Abdominal Examination of Children with Telemedicine in Covid-19 Pandemic

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Editorial

The first application of telemedicine was a banal event on March 10, 1876, when British inventor Alexander Graham Bell accidentally spilled acid on his suit while working on his patented "telephone apparatus" and used the device to call his colleague Thomas A. Watson, who was present in the next room, for help. If the distance was only a few meters during this first medical emergency or remote call only 130 years ago, telemedicine has developed until today to a tool that enabled the ground personnel of the American space agency "NASA" to provide medical monitoring or care for astronauts located in the thermosphere - in real time. The goals of telemedicine are to improve the health of citizens by providing vital information - including between countries, where appropriate - using e-health services, to improve the quality and accessibility of medical care by incorporating eHealth into health policies and by coordinating the political, financial and technical strategies of EU countries, creating efficient, user-friendly, and widely accepted eHealth services by involving professionals and patients in strategy, design, and implementation. Telemedicine procedures have been tested on a larger scale since the 1980s. The driving force for telemedicine is a spatial separation of doctor and patient or doctor and specialist, as in space travel (here also telemetry), expeditions (Arctic, Antarctic) or military operations. Large countries with a small population in remote areas also saw a need for telemedicine applications early on. For this reason, much research has been done in Norway. In addition to telemedicine, other forms of care exist, such as the Flying Doctors from Australia. Especially in terms of quality of care, telemedicine rehabilitation offers enormous advantages. The patient exercises at home under the supervision of therapists he already knows from his stay in the specialized clinic. With telerehabilitation, comprehensive rehab follow-up care is also possible outside of metropolitan areas. Journeys to the therapy facility are no longer

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necessary. Patients who have already returned to work after their inpatient rehabilitation treatment can complete their exercises while working, with free scheduling. In medically well-supplied areas, telemedicine is used with the aim of improving quality, for example, by obtaining a second opinion, and also to improve patients' quality of life by saving them trips to the doctor's office or to prevent emergencies by monitoring them with equipment. Telemedicine can thus provide an answer to the medical challenges of our time, which is characterized by an aging society and chronic diseases. The use of ICT in the medical field is already being implemented in individual projects but is only finding its way into standard care to a limited extent. In order to meet the current medical challenges, however, comprehensive telemedical care for the entire population is necessary [5]. Despite a large number of projects, only a few have been adopted into standard care, which is why we speak of pilotitis in this context in the telemedicine sector. Telemedicine can also contribute to improving education, training and continuing education. A three-part randomized study by the Group Health Center for Health Studies in Seattle, among others, has shown that the success of treatment is not only based on improved technical conditions. According to the June 2008 publication in the U.S. medical journal JAMA, only patients with direct personal Internet counseling experienced a statistically significant increase in treatment success (adjusted relative risk of improved blood pressure control: 3.32; 95 percent confidence interval 1.86-5.94). In view of these and similar research findings, a "substitution of the personal doctor-patient exchange, which is very important for healing processes, by telemedicine is neither reasonable let alone seriously wanted." Telemedicine is often misunderstood, it is not the use of electronic devices and software, but a new form of treatment, using a new medium.

We focused on an innovative approach of telemedicine to examine, diagnose and treat abdominal pain in 120 pediatric patients. Telemedicine setting was performed in 120 children by two medical assistants in the pediatric department who were in contact with the patient, one of holding the telemedicine device and the pediatrician placed outside. 120 children with an age range of 4 months to 16 years were examined. One of the two medical assistant had 15 years of pediatric experience in handling children in ambulances or pediatric day centers. Fever was measured before telemedicine examination. The parents gave uniform consent for telemedicine evaluation. Both assistants positioned the child on the examination table and placed both arms along the body. Abdominal examination started in a following manner: pressing left lower quadrant at first, then palpating left upper quadrant, epigastrium, right upper quadrant and at least right lower quadrant. Despite examination, face mask was removed to see any signs in relation to pain or unpleasant reaction of the patient. The telemedicine device was positioned from feet above to the head, pediatrician could see all examination steps and the facial pain emotions in the moment of abdominal palpation. 120 children were diagnosed in telemedicine setting and prescriptions or recommendations for next diagnostic steps were performed. The Corona pandemic in particular has ensured that online consultations becoming increasingly popular: Instead of crowded waiting rooms, you can simply get treatment from home. In this way, an illness can be diagnosed even though the pediatrician is not in the same place as the person being treated. If necessary, examination data such as temperature, urine analysis, blood tests can also be transmitted. Subsequently, a discussion can be

held about any necessary therapy and whether a personal visit to the doctor's office is still required. Concerning pediatric abdominal examination, telemedicine virtual setting with a pediatrician was not performed yet. The future could be, in “fast track” pediatric departments like ambulances or pediatric day centers, that the pediatric doctors work as a virtual doctor in examining, diagnosing and treating pediatric patients in urgency. Signs of appendicitis or epigastric pain can be found virtually as good as in normal setting. Moreover, signs of peritoneal involvement or gas filling of the abdomen are also definable by telemedicine. Telemedicine management has high sensitivity to diagnose and treat correctly when examiner and doctor have much experience in treating children.

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