

## COMMENTARY

# Challenges in managing cataract from Congenital Rubella Syndrome during the COVID-19 pandemic

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### ABSTRACT

Congenital rubella syndrome (CRS) cases being seen in a tertiary hospital in Baguio rose in 2020 during the COVID-19 pandemic. Its communicability presented logistical challenges to the hospital as additional contact and droplet precautions, including COVID-19 RT-PCR testing, were needed to be observed to prevent rubella transmission. The operations of the institute have also been disrupted and compromised since its space and resources were diverted to the pandemic response. A probable rubella transmission occurred when a patient with CRS was admitted for cataract surgery but was delayed due to the COVID-19 RT-PCR test requirement. Another patient admitted from the Outpatient Department on the same day developed maculopapular rashes for three days during admission but with no febrile episodes and lymphadenopathy. These cases showed how managing CRS cataracts got complicated by the current COVID-19 pandemic which resulted in the review and proposal to revise current hospital policies to minimize the exposure of vulnerable individuals and prevent future transmission.

**Keywords:** congenital rubella syndrome, cataract, communicability, COVID-19, policies

## Introduction

German measles is a disease caused by the rubella virus that often presents with a low-grade fever, lymphadenopathy, and maculopapular rashes which often last for three days [1]. It is transmitted through droplet or direct contact to nasopharyngeal secretions [1]. An infected pregnant woman can also pass it to her developing child [2]. Infants infected congenitally can have different manifestations including but not limited to cataract, hearing loss, and heart anomalies known as congenital rubella syndrome (CRS) [2]. Despite the incorporation of rubella-containing vaccine (RCV) in 2009 to the national routine immunization for Filipino children up to eight years old, there has been no program that targets women of childbearing age to address the burden of CRS [3]. Current vaccination coverage including RCV in the Philippines is affected by the dengue vaccine controversy in the past and the ongoing COVID-19 pandemic [4,5]. This will, at best, maintain the national incidence of rubella and CRS constant at an estimated 20-31 cases per 100,000 population annually, or worse, increase it significantly [3].

Cataract in CRS patients needs urgent extraction for the child's better visual prognosis and rehabilitation [6,7]. Thus, children with cataract were admitted and surgically managed in the institution despite the limited hospital operations brought about by the COVID-19 pandemic [8]. However, CRS patients are deemed communicable up to one year of age unless proven otherwise by two negative viral cultures or an alternative rubella reverse transcriptase-polymerase chain reaction (RT-PCR) one month apart after three months of age [2,6,9]. Since viral cultures and rubella RT-PCR are not readily available in the country, managing CRS patients can be challenging because if the necessary precautions are not observed, vulnerable populations including patients, watchers, and medical personnel who are either unvaccinated or with low rubella antibody titers can be exposed and this can subsequently promote rubella transmission in the different areas of the hospital. However, observing droplet precautions or isolating patients proves challenging when the space and manpower allotted for the department's non-

COVID-19 admitted patients are reduced since they had been understandably diverted to accommodate COVID-19 patients as the hospital became the region's designated COVID-19 referral center.

A three-month-old male (Patient A) was diagnosed with congenital rubella syndrome (CRS) and was being managed by the Pediatric Cardiology Section for a persistent ductus arteriosus since birth and by the Otorhinolaryngology Section for abnormal auditory testing results for both ears. He was referred to the Ophthalmology Department for a cataract on the left eye noted at one month of age. Although there was no maternal exposure to rubella or maternal history of three-day fever and rashes during pregnancy, the patient turned out positive for rubella IgM and IgG antibodies after undergoing Toxoplasma, Rubella, Cytomegalovirus, and Herpes (TORCH) antibodies testing, a serological test to determine the presence of antibodies against one or more of the named infectious agents which can indicate congenital infection and may explain the clinical manifestations present in the patient, done in another institution [7,10]. Together with the clinical manifestations, the presence of rubella IgM antibodies confirmed that the rubella was congenitally acquired by the patient while the presence of rubella IgG antibodies may still have been from the mother passed in utero [8,11].

Patient A was admitted on 25 August 2020 to undergo urgent cataract extraction without intraocular lens implantation for the left eye under general anesthesia. He was unable to get the COVID-19 RT-PCR test three days prior to admission to undergo the surgery the following day so the patient had it done while admitted. Since the patient was considered communicable for rubella, a shorter stay in the ward was advised. Patient A eventually tested negative for COVID-19 RT-PCR but had to wait the following week, on the only day allotted for the department to conduct surgery, due to the limited hospital operations. Similarly, due to the reduction in allotted space for non-COVID-19 admissions, observance of droplet precaution became challenging. Ventilation was limited as well. Plastic dividers were installed between patient beds to serve as general barriers for COVID-19 and prevent other disease transmissions while also continuously observing standard and contact precautions.

Amid the precautions taken to avoid rubella transmission, Patient B, child patient being managed for retinoblastoma (a childhood intraocular malignancy), and preseptal cellulitis (an infection of the left eyelid) developed maculopapular rashes from the back spreading to the abdomen, post-occipital area, neck, face, and gluteal area from 2-5 September 2020 with no

febrile episodes and lymphadenopathy. He did not develop fever but had increased white blood cells from the preseptal cellulitis. Patient B was admitted on 25 August 2020, the same day as patient A, and was transferred to a bed adjacent to Patient A on 28 August 2020 after testing negative from COVID-19 RT-PCR. Upon investigation, Patient B had no history of exposure to anyone with three-day rashes in the past two to three weeks prior to admission and the mother claimed that he was completely vaccinated. It was not specified though if the patient received RCV. Patient B may have been initially exposed to Patient A during their admission on 25 August 2020. Patient B also still had to be admitted longer since he had to undergo orbital computed tomography to confirm the extent of retinoblastoma and underwent emergency eye removal on 3 September 2020 due to the presence of an advanced disease. The serologic test to verify rubella infection cannot be done due to the unavailability of test in the hospital.

The rubella transmission in the hospital was considered probable since it was just based on the presence of the three-day maculopapular rashes in Patient B and the interval between possible exposure and onset of rashes was shorter than two to three weeks, the common incubation period for Rubella. However, possible lapses, especially in the observance of droplet precautions due to the contraction of space allotment, were identified which may have led to the exposure of Patient B to Patient A [9,12]. There was also the possible exposure of other department patients to Patient B during his admission, as rubella cases are considered contagious even seven days prior to the onset of rashes [9,12].

## Recommendations

As such, the department opted to review its existing policies and recommended revisions especially in the setting of expected increase in rubella and congenital rubella cases from decreased RCV coverage and decreased access to prenatal services due to the ongoing COVID-19 pandemic. Proposals include a reiteration of the observance of droplet, contact, and standard precautions among medical personnel in handling and admitting patients one-year-old or younger who are suspected to have congenital rubella infection based on history and clinical manifestations or verified with TORCH antibody testing, if available [9,12]. The precautions shall be observed especially by the attending personnel who may be pregnant, immunocompromised, or whose immunity status is unknown. A separate waiting area with proper ventilation in the ophthalmology outpatient department shall be dedicated for patients and their watchers to promote droplet precaution [12]. Although this will prove to be challenging considering the

contraction in space allotment brought about by the pandemic, it is necessary. An ophthalmological examination station shall be disinfected after the consultation. Similar precautions shall be observed when being seen by co-managing services such as pediatrics and otorhinolaryngology. Once a plan to do a cataract extraction is made, admission shall be coordinated with other co-managing services such as pediatrics and anesthesiology to ensure the availability of isolation rooms and that the measures to prevent transmission in the ward (if isolation rooms are not available), operating room, and recovery room are in place [9,12]. During admission, all personnel in the emergency room and in the ward, both medical and administrative, will be advised to don personal protection equipment (PPE) and wear facial masks for any contact with the patient. Hand washing shall be done after doffing PPE. Transport and movement of patients outside the designated room shall be limited [11,12]. Scheduling of secondary intraocular lens implantation shall be preferably made when a patient is one-year old or older since viral shedding is already lower at this age. Unfortunately, viral culture and rubella RT-PCR are not available in the institution to confirm the communicability of patients. We recommend that other medical institutions review their current policies in handling CRS patients and make the needed adjustments.

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