

Supplemental Table 1. Progression of Orangutan Respiratory Disease Syndrome, treatment timeline, and surgical intervention dates of Case 1 from 2013 to 2022.

New Episode ^a	Date	Symptom Descriptions	Antibiotic treatment ^b	Surgery
1	28-Apr-13	General lethargy, mucopurulent discharge from nasal cavity, coughing, intermittent fever (>39°C). Cough persisted for two months.	Cefadroxil 500 mg (Bernofarm Pharmaceutical Company, Jawa Timur 61252, Indonesia) q12h for 10 days, continued with Ceftriaxone 2500mg (PT Dankos Farma, DKI Jakarta 13930, Indonesia) q24h for 14 days	N/A
	24-Jan-14	Persistent coughing, general lethargy, accumulation of caseous purulent material from airsac. Coughing continued to be observed from August 2013 until March 2014 (eight months).	Ceftriaxone 3 g (PT. Hexpharm Jaya Laboratories, Magelang, Indonesia) q24h for 2 days, continued with Cefadroxil 500mg (Bernofarm Pharmaceutical Company, Jawa Timur 61252, Indonesia) q12h for 5 days, continued with Levofloxacin 500mg (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) q24h for 14 days.	Airsac marsupialization surgery.
Clear of symptoms for nine months				
2	12-Jan-15	Persistent coughing, general lethargy, accumulation of caseous purulent material from airsac (two months)	Cefadroxil 500mg (Bernofarm Pharmaceutical Company, Jawa Timur 61252, Indonesia) q12h for 7 days, continued with Levofloxacin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 500mg q24h for 15 days, continued with Ofloxacin 400 mg (PT. Novell Pharmaceutical Laboratories, Bogor 16962, Indonesia) q12h for 14 days.	Airsac marsupialization surgery and repeated flushing seven days later.
	15-Feb-15	Coughing, purulent nasal discharge, and accumulation of caseous purulent material from airsac continued to be observed until May 2015 (two months).		Re-marsupialization surgery and flushing.
Clear of symptoms for two months				
3	19-Aug-15	Accumulation of purulent material from airsac, coughing (two months)	Levofloxacin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 500mg q24h for 6 weeks, continued with doxycycline 200mg (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) q12h for 4 days.	Repeated flushing through the previously made marsupial hole
	01-Nov-15	Persistent coughing, mucopurulent nasal discharge, and purulent material drainage was consistently observed (five months)	Levofloxacin 500mg (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) q24h for 17 days, continued with doxycycline 150mg (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) q12h for 10 weeks.	Repeated flushings through the previously made marsupial hole every 2-4 weeks for a total of ten weeks.

	26-Feb-16		Azithromycin 500 mg (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) md; 250 mg md, q24h for 7 days.	Airsac marsupialization and repeated flushing six days later.
	24-Jun-16	Persistent coughing and nasal discharge (three months).	Cefadroxil 500 mg (Bernofarm Pharmaceutical Company, Jawa Timur 61252, Indonesia), q12h for 3 days, continued with Cefixime 200mg (Bernofarm Pharmaceutical Company, Jawa Timur 61252, Indonesia) q12h for 14 days.	Airsac marsupialization and repeated flushing of the airsac three days later.
	28-Jul-16		Azithromycin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 500 mg, q24h for 3 days.	N/A
	30-Oct-16	First CT scan: right maxillary sinusitis, right sphenoid sinusitis, right lung consolidation with bronchiectasis, left lung abscess with bronchial walls thickening. Mediastinum deviation to the right. Symptoms of coughing and nasal discharge persisted for three months.	Azithromycin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 400mg 3/wk for 8 weeks, combined with nebulized salbutamol (GlaxoSmithKline Australia Pty Ltd, Victoria 8003, Australia) 2.5mg q12h for 8 weeks.	N/A
	12-Aug-17	Symptom improved following 8-week-course of azithromycin, but heavy breathing was observed from January to September 2017. In August it was decided to initiate the long-term Azithromycin regime.	Azithromycin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 400mg 3/wk long-term ^d	N/A
	04-Oct-17	Evaluation CT scan after three months on azithromycin suggested improvement of right maxillary sinusitis, resolution of sphenoid sinusitis, improvement of right lung pneumonia with numerous consolidation areas and persistent bronchiectasis, improvement of left lung pneumonia and bronchial walls thickening, and resolution of the abscess in the left lung. Mediastinum deviation to the right was also improved. Symptoms not observed.	Continuation of azithromycin.	N/A
Clear symptoms for four months				
4	03-Feb-18	Fever, deep cough, general lethargy, inappetence (one month).	Continuation of azithromycin. Added Levofloxacin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia)500mg q24h for 4 weeks, continued with nebulized Colistin® 77mg (Teva Pharma AG, Basel, Switzerland) q12h for 5 days, and nebulized Salbutamol (GlaxoSmithKline Australia Pty Ltd, Victoria 8003, Australia)2.5mg q12h for 8 weeks.	N/A
Clear symptoms for two months				

RH: ORDS CASE SERIES

CLINICAL MANAGEMENT OF CHRONIC ORANGUTAN RESPIRATORY DISEASE SYNDROME IN THREE ADULT MALE BORNEAN ORANGUTANS (PONGO PYGMAEUS)

Fransiska Sulisty, DVM, MVS, Nancy P. Lung, VMD, MS, Agnes P. Sriningsih, DVM, Stuart A. Aronson MD, and Jennifer L. Taylor-Cousar, MD, MSCS

5	25-May-18	Fever, deep cough, general lethargy, inappetence. Heavy breathing observed for two months until June 2018. Nebulization training process.	Continuation of azithromycin, combined with Doxycycline (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 100mg q12h for 3 weeks. Added nebulized Salbutamol (GlaxoSmithKline Australia Pty Ltd, Victoria 8003, Australia) 2.5mg q12h long-term.	N/A
Clear symptoms for six months				
	22-Aug-18		Added nebulized hypertonic saline (3% PT. Otsuka Indonesia, Malang 65216, Indonesia, or 7% PARI Respiratory Equipment, Inc., Virginia 23112, USA) 4ml q12h long-term.	N/A
6	07-Jan-19	Observed to produce a lot of mucous post nebulization, airsac fistula produced discharge. General lethargy and loss of appetite (one month).	Continuation of Azithromycin, nebulized Salbutamol, nebulized hypertonic saline. Added Levofloxacin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 500mg q24h for 4 weeks.	N/A
	19-Jul-19	Evaluation CT scan after 24 months on azithromycin showed unchanged minimal maxillary sinusitis, mild bilateral rhinitis, persistent right lung bronchiectasis, pneumatocele, scattered fibrosis, and volume loss, improved left lung consolidation, and mild bronchiectasis. Mediastinum deviation to the right unchanged. Symptoms not observed.	Continuation of long-term Azithromycin, nebulized Salbutamol, and nebulized hypertonic saline.	
Clear symptoms for 17 months				
7	22-Jul-20	Productive coughing had been observed for 5 weeks, gradual deterioration of activity level and inappetence. Coughing observed for two months.	Continuation of Azithromycin, nebulized Salbutamol, nebulized hypertonic saline. Added Levofloxacin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 500mg q24h for 7 days, which then changed to Meropenem (PT. Dankos Farma Tbk., Jakarta 13930, Indonesia) 500mg q12h for 14 days.	N/A
Clear symptoms for 14 months				
8 ^c	27-Nov-21	Coughing, projectile purulent material from airsac marsupial hole (one month).	Continuation of Azithromycin, nebulized Salbutamol, nebulized hypertonic saline, and combined with Levofloxacin (PT. Kimia Farma, Jakarta Pusat 10110, Indonesia) 500mg q24h for 4 weeks.	N/A
Clear symptoms for 13 months (up to December 2022)				

^aA new episode is defined as a new appearance of clinical signs that was not observed for at least two months prior to the episode, which persisted and progressed for more than three days, and thus warranted the administration of an antibiotic with or without surgical treatment to clear the air sac accumulation of pus.

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^bIn addition to the antibiotic treatment, supportive care like anti-pyretic, anti-histamine, and painkillers were given to the animal during his exacerbation episodes as per the vets' discretion.

^cThe exacerbation that occurred in November of 2021 coincided with a temporary halt to azithromycin therapy due to a drug shortage during the Covid pandemic. Nebulization continued during this period.

^dStart of chronic ORDS treatment.