

SUCCESSFUL MANAGEMENT OF CHYLOTHORAX IN A DOG- A CASE REPORT

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INTRODUCTION

Chylothorax is the accumulation of chyle in the pleural cavity and has been reported in dogs, cats, humans and other species (Ettinger and Feldman, 2010). Any disease or process that increases systemic venous pressures (i.e. right heart failure, mediastinal neoplasia, cranial venacava thrombi or granuloma) may cause chylothorax.

CASE HISTORY AND CLINICAL FINDINGS

A non descript male dog aged about 8 years was brought to Veterinary College and Research Institute hospital with history of dyspnoea and not taking food for five days. Clinical examination of the dog revealed pale mucous membrane, cough, abducted elbows, severe dyspnoea, oral breathing / panting, lethargy, exercise intolerance and tachycardia. Auscultation revealed muffled heart sound and murmur. Haemato -biochemical examination did not reveal any abnormality. Thoracocentesis was done and about 520ml of chyle was removed on the day of presentation (Fig 1). Analysis of the pleural effusion revealed chyle (Fig 2) white coloured, opaque with



Fig 1. Needle Thoracocentesis



Fig 2. Chyle- White coloured and opaque in nature 2.5g/dl protein and WBC $5.23 \times 10^3/\text{cumm}$. Ultrasonography of the thorax and heart revealed pleural effusion and tricuspid valve insufficiency. Electrocardiography and radiography of the animal in standing posture depicted reduced QRS complex and fluid accumulation in the pleura with loss in cardiac silhouette respectively.

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TREATMENT

The dog was administered with Ringers lactate (10ml/kg body weight intravenous) to counteract shock along with frusemide (4mg/kg IM). Enalapril (0.5mg/kg PO bid), frusemide (4mg/kg PO bid). Salt restricted diet were advocated. It was suggested that the animal should not be put to exercise. Amoxicillin-Cloxacillin (20mg/kg PO bid) was prescribed for five days. The animal was presented again on 8th day for check up. Dog showed good clinical improvement and was able to take food and water by itself. The degree of dyspnoea was reduced and animal was able to lie down without any respiratory distress. The dog had uneventful recovery from pleural effusion and is presently under treatment with enalapril and frusemide for valvular insufficiency.

DISCUSSION

Chylothorax is more commonly caused by transmural leakage of chyle that occurred through intact but dilated lymphatic vessels. Underlying diseases that have been reported to cause chylothorax include heart disease (cardiomyopathy, pericardial effusion, heartworm disease, tetralogy of Fallot, tricuspid dysplasia, cor triatriatum dexter), lymphatic or mediastinal neoplasia, fungal granuloma, venacaval thrombosis, peritoneal pericardial diaphragmatic hernia, lung lobe torsion, and congenital abnormalities of thoracic duct (Birchard *et al.*, 1998). In most small animal patients, chylothorax is considered to be idiopathic because the specific aetiology remains unknown (Ettinger and Feldman, 2010). In the present case, chylothorax is due to heart disease caused by tricuspid valve insufficiency. Sturgess (2001) reported that the common presenting signs in chylothorax were

restrictive breathing pattern, dyspnoea, tachypnoea, coughing, weight loss, muffled heart sound, and decreased lung sound on ventral area. The clinical signs noticed in the present study are similar to the reports of the above author. Chyle appeared white milky to pink coloured, opaque. (Fossum, 2007). Radiography was helpful in identifying masses, neoplasm, cardiac disease or lung lobe torsion. Echocardiography identified cardiac diseases and effusion (Ettinger and Feldman, 2010). Emergency procedure that has to be adopted in patients with pleural effusion is therapeutic needle thoraco-centesis. Needle thoracocentesis is done at 7th intercostal space on the ventral one third of the thorax and removal of fluid at the rate of 10ml/kg body weight is sufficient to result in significant improvement in respiration (Sturgess, 2001). In the present study, clinical signs, radiography and ultrasonography were useful in diagnosing chylothorax. Other medical management strategies included use of low-fat diets, benzopyrone octreotide in addition to treatment of underlying cause. Benzopyrone may increase the number and function of macrophages to remove protein from lymph and promote fluid reabsorption. Octreotide, a somatostatin analog that inhibits gastric, pancreatic and biliary secretions, promote gastrointestinal water absorption can also be used (Rasiah *et al.*, 2003). If chylothorax is idiopathic, surgical management with ligation of thoracic duct with pericardiectomy, pleuro peritoneal shunting, pleuro venous shunting or pleurodesis could be done (Fossum, 2007).

SUMMARY

A successful management of chylothorax due to heart disease in a dog with thoracocentesis, frusemide, and enalapril is placed on record.

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HOMAGE TO Dr. VARGHESE KURIEN: INDIA'S WHITE KNIGHT

The architect of 'white revolution', Varghese Kurien, who led 'Operation Flood' to transform India from a milk-deficient country to the world's biggest milk producer died on 9-9-2012 at the age of 90. Hailed as the undisputed 'Milkman of India', who created the billion dollar brand Amul, he is credited with laying the foundation of the nation's co-operative dairy model.

The Indian Government had conferred on him the Padma Vibhushan. He was also the recipient of World Food Prize, Ramon Magsaysay award for Community Leadership, Carnegie-Wateler World Peace Prize and International Person of the Year award from US.

Born in Kozhikode, Kerala, on November 26, 1921, Kurien had graduated in science from Loyola College in Chennai (1940) and obtained his degree in engineering from the Guindy College of Engineering in Chennai. After a stint at TISCO, Jamshedpur, Kurien got the Government of India's scholarship to study dairy engineering. Following specialised training at Imperial Institute of Animal Husbandry and Dairying in Bangalore, Kurien went to the USA where he completed his masters' degree in mechanical engineering with dairy engineering as a minor subject from Michigan State University in 1948. On his return to India, Dr. Kurien was assigned to join Government Creamery located at Anand in Gujarat to serve his bond period. Kurien then joined Kaira District Cooperative Milk Producers' Union Limited in 1949 on the request of Tribhuvandas Patel, the then Dairy Chairman. The dairy was formed at the initiative of Sardar Vallabhbhai Patel. Later, Patel asked Kurien to help set up a dairy processing plant which saw the birth of Amul.

Amul's co-operative model became a success and it was replicated throughout Gujarat. The different dairy unions were later brought under the banner of Gujarat Co-operative Milk Marketing Federation (GCMMF). Dedicating his professional life to empowering the Indian farmers through co-operatives, Kurien, served the GCMMF from 1973 to 2006, and the Institute of Rural Management (IRMA) from 1979 to 2006. Kurien's tenure at Anand changed the destiny of Indian dairy industry. The first dairy co-operative union in Gujarat was formed in 1946 with two village dairy co-operative societies as its members.

By 1955, Kurien led to the development of the iconic Amul brand for selling the milk of the co-operative. In 1965, Kurien's leadership caught the attention of the Prime Minister Lal Bhadur Shastri. He asked Kurien to lead the National Dairy Development Board (NDDB) and replicate the Co-operative success story of Amul across the country. In 1970, with the help of the World Bank, the NDDB started "Operation Flood" which, over the next 26 years, transformed India from a milk importer to world's top most milk producing country. Kurien came to be known as the "Milkman of India" and the "Father of White Revolution".