



Dropsy Syndrome (Tummy Cavity Oedema, Assist)

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Abstract: Dropsy Syndrome (Tummy Cavity Oedema, Assist) fish are having trouble swimming, breathe, and has a bulging tummy. Oedema occurs because the small blood vessels (capillaries) in your body leak fluid. Leaking fluid around the vein. It accumulates in tissues and causes swelling. There are literatures that consider dropsy as a disease, but there are also literatures that consider it only as a serious symptom. In this respect, it is an important disease case status and report worth investigating. Dropsy, also spelled oedema, edema, and also known as fluid retention, dropsy, oedema, hydropsy and swelling, is build-up of fluid in body tissue. Most commonly, tummy is affected. Symptoms may include skin which feels tight, area may feel heavy, and joint stiffness. In dropsy case, we observed dangerous level loose scales in the fish body. The aim of this review is to examine dropsy syndrome in fish. With dropsy syndrome that occur in visceral organs are internal septicemia, hyperplasia, telangiectasia, dermatitis, and granuloma nephritis. The conclusion of this research, that vital importance Dropsy Syndrome.

Keywords: Dropsy Syndrome, Tummy Cavity Oedema, Dropsy, Assist, Fish Ailment, Clinical case

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1. Introduction

Dropsy Syndrome (Tummy Cavity Oedema, Assist, Dropsy) is a critical finding that occurs in many diseases. At the same time, this oedema problem encountered even when there is no disease. Oedema is phenomenon of extravasation of blood fluid and increase in fluid between cells. Commonly this oedema form called 'anasarca'. The basic principle of phenomenon of oedema is the loss of balance between blood fluid and extracellular fluid Abdominal cavity intermembrane oedema (hydroperitoneum, assist, ascites) occurs (Emmett and Seldin, 1997; Scallan et al., 2010; Kumar et al., 2015; Goljan, 2019; Freire et al., 2023). Bad water conditions can trigger dropsy symptom in fish (Freire et al., 2023). Fluid entering body begins to accumulate in visceral organs and physical appearance created by this accumulation is called "dropsy".

It is thought to be one of the underlying causes of dropsy. Polycystic Kidney Disease (PKD) is a condition where fluid filled cysts form on the kidney which leads to overall renal failure. Zebrafish has been recently adapted to study PKD, because of its powerful embryology and genetics. However, there are concerns on conservation of this lower vertebrate in modeling PKD (Koslow et al., 2023).

In some cases of dropsy, constipation is also observed. With overfeeding, digestive system swells and cannot digest, this system becomes blocked. This situation does not develop suddenly or quickly, but takes shape over time. Feeds are either given in excess or feeding must be done at very frequent intervals. Feces that hang from fish anus and remains suspended for long time. There is also a color change in this stool. In treatment and prevention; 30 minutes in paraffin wax. Marinated shrimp meal and boiled spinach are mixed with a small amount of live food and given orally. The fish is treated in a separate environment and it is monitored whether it takes food or not (Stokoe, 1966).

2. Dropsy Syndrome (Tummy Cavity Oedema)

Generally, most diseases cause excessive abnormal accumulation of fluid in the peritoneal cavity, amounting to almost half of the body weight. While neoplasia and chronic organ failure are seen in older fish, blistering in young fish is usually caused by acute infectious disease. Any disease or condition that disrupts osmoregulation potentially creates acid in the skin, independent of edema formation. Aspirating a few cc of fluid will shed light on the underlying causes, but aspirating the entire fluid surgically will be more revealing. Care should be taken when aspirating fluid. Excessive fluid may accumulate in the ovaries, resulting in

ovarian neoplasia. Additionally, at the point when the fish is removed from the water, edema fluid will flow passively from the genital pores (Wildgoose, 2007).

Contrary to popular belief, a dropsy problem is not a disease. Dropsy is actually used to describe a condition in which external symptoms occur, rather than disease. Tummy of body due to water intake may be because of infection ailment or organ failure. This unchecked water increase also must be needs to come out of body, if this water does not come out, body of fish begins to absorb water and result can be fatal. Kidneys are responsible for excreting water (Sen and Mandal, 2018). Also, dropsy is a syndrome. And this syndrome should not be confused with Bloat Disease.

3. Dropsy symptoms

Symptom of excessive is water retention in the body. Abdomen more swollen in contrast to its normal roundness. According to clinical symptoms, look weak and swim on surface, difficulty in breathing, and swollen stomach, decreased appetite, bruises on fins and tail, kidney has hemorrhage purpura widely (Rahmaningsih, 2012).

Depending on the underlying cause of kidney and gill malfunction, you may see a variety of physical symptoms. Dropsy isolated condition, is associated with various forms of swelling. Symptoms are oedema tummy, protruding scales, exophthalmia in eyes sockets (eyes trauma), pale gills, increased respiratory rate, oedema anus, redness skin, redness fins in fish body.

It is frequently associated with exophthalmia due to retrobulbar effusion, which may be unilateral or bilateral (Lewbart et al., 1998)

4. Dropsy cases circumstance

Urogenital diseases in fish vary according to fish species. This excess fluid is removed from the body through surgery. Another reason for swelling is that ovulation occurs late in the ovulation season, or no ovulation is observed. These eggs remain in the creature's abdomen or abdominal cavity and rot. As a result of this decay, swelling is observed. In this case, it can encourage fish with the case to spawn by giving hormones. There may be many environmental reasons that may prevent the kidney from working properly. Other reasons, whether caused by an infection or not, may also cause the kidneys to stop working. Additionally, this may be due to stress of fish (Guardiola et al., 2014).

Kidney failure most commonly observed in fish. PKD causes kidney failure its breakdown by fluid-filled cysts. Swimming disorders may also occur due to PKD. Swollen kidneys compress and displace swim bladders, and this case may fish not be able to even swim. When dropsy occurs in fish, diagnosis of PKD can made by your veterinarian by ultrasound or needle aspiration (Koslow et al., 2023).

In a case, cause ailment by *Vibrio anguillarum*, most damage was detected in the kidney tissue. In histopathological examination, necrosis in interrenal hemopoietic tissue cells, glomerular oedema, tubular oedema and degeneration in tubule epithelial cells and small

hemosiderin accumulations were detected in the kidney tissue of the sick fish. Oedema is a problem in many similar infectious diseases. Treatment is also a symptom that needs attention. Otherwise, it may cause a secondary infection.

In the kidney, sexual dimorphism in gene expression patterns, transporters, responses to injury, as well as PKD progression has been reported (Veiras et al. 2017; Laouari et al., 2022; Neugarten and Golestaneh, 2022). It disrupts the function of organs. In some serious cases, it even causes multiple organ failure.

Although it is said that PKD is caused by parasites, no parasite species have ever been found in living things or in the environment. In some cases, the disease goes away on its own; It has been observed that some of them disappear with hyperosmotic treatment. These observation rates are quite low. Generally speaking, there is no treatment for PKD (Rizkiantino et al., 2023).

5. Dropsy diagnosis

Clinical examination of fish with tummy oedema is frequently limited but using gentle palpation differentiate between presence of fluid or solid mass in tummy. Ballotement can be used to detect mass within fluid-filled tummy cavity (Roberts and Pearson, 2005).

Laparoscopy and laparotomy are uses in some tummy cases (Nagy and James, 1989). Diagnostic imaging is a surgical tool in the diagnosis of fatal or non-fatal abdominal edema in fish. Magnetic resonance imaging and computed tomography devices are used for abdominal lesions. It requires anesthesia so that radiography can show gas and space-occupying lesions within the body cavity. The gas-filled swim bladder and internal organs are examined with an ultrasonography device. In continuation of the examination of internal organs, examinations are also carried out for vital changes in tissue density and in the abdomen and its surroundings where abnormal fluid has accumulated (Lewbart et al., 1998; Wildgoose et al., 2007). The subject of molecular examination of fluid taken from the abdomen is included in some literature.

6. Dropsy prognosis

Since it is a symptom and not a disease, dropsy is dependent on the state of a fish underlying disease and will resolve if that disease can be successfully treated. Dropsy can be fatal due to advanced stage of underlying disease causing excessive turgescing that leads to organ failure (Peitzman 2007).

7. Dropsy treatment

All fish with dropsy should quarantined immediately. A simple change of water and environment can eliminate all symptoms. If symptoms persist in when creature is returned to the main marin environmental, this indicates that there is a hidden stressor in the marin and must be eliminated (Vajargah, 2022).

Spontaneous recovery rarely occurs. For fish that continue to eat, the amount of feed is reduced. No feed changes are

made. Vitamin C supplementation is given. Antibiotic feeds are soaked and given. Metronidazole 1 tablet / 50 lt, 50% of the water changes after 24 hours. The same dosage is repeated, waited for 3 days, and if the swelling does not subside, repeat (Pal and Lal, 2023).

8. Result and discussion

In a manuscript, Koslow et al., 2023 reported that decided to take two approaches to assess conservation of zebrafish for PKD study. First approach, researchers assessed molecular conservation by querying how many cystic kidney disease genes have their corresponding zebrafish homologs. And researchers found that out of 82 genes that cause renal cysts, zebrafish have homologs for 81 of these genes. Second approach, researchers compared gene expression between male and female fish kidneys and noted obvious differences. Among the differentially expressed signaling pathways, researchers noted a remarkable 37.9% similarities to a previously established rodent PKD model. Together, the point in question studies indicate zebrafish a valuable model for studying PKD.

William H. Wildgoose 2007 reported that A Clinician's Approach to Internal Disorders of Fish: Abdominal Swelling topic manuscript explained tummy oedema and diseases related to this symptom essential points. Although the example of zebrafish kidney problem is generally given as a case in this review article, dropsy causes serious dangers for every fish.

Severe edema was observed in the lamellar epithelium, gills (Küçük, 2019), between cells, pericardial region, and yolk sac, toxicity and teratogenicity (Turhan, 2023). Pericardial edema and yolk sac oedema are observed more frequently than other types of malformations (Uçar and Atamanalp, 2008).

Although several experience specific disease problems most cases of tummy oedema must be enquired in a systematic manner due to different underlying causes. However, in many disease cases, both surgical treatments and medical attentions are often unrewarding. In case euthanasia is frequently the best option for affected fish.

Based on the case examples of researchers explained in discussion, it is recommended in this review article to investigate the factors underlying dropsin at a more molecular level. Also, oedema supports the claim regarding toxicity and teratogenicity.

Although dropsy-infected seems like a problem that can be solved with surgery, underlying cause must be investigated. Uncontrolled fluid accumulation in symptom of dropsy adversely affects internal organs and can be fatal in persistent cases.

Authors' contributions

Conceptualization, Validation, Investigation, Screening literatures, Data Curation, Writing - Original Draft, Writing, Approved final version.

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