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## Castleman disease

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#### Abstract

This is a disease which mostly goes undetected & underdiagnosed. The patient may come to know about enlarged lymph nodes only during physical examination for some other complaints. In this condition the abnormal overgrowth of cells of the lymph system that is similar to lymphomas is seen, this is why the disease is also called as lymphoproliferative disorders. It is not a cancer but is mostly confused with cancer because of overgrowth of lymph tissues. The treatment mainly deals with surgical removal of lymph node or immunotherapy.

**Keywords:** Lymphoma, Lymphoid tissue, lymph node, Unicentric castleman disease, multicentric castleman disease

#### Introduction

##### Castleman Disease

**Castleman's disease** is a group of uncommon lymphoproliferative disorders characterized by lymph node enlargement, characteristic features on microscopic analysis of enlarged lymph node tissue, and a range of symptoms and clinical findings <sup>[1]</sup>. Dr. Benjamin Castleman first described the features observed in the disease in the 1950s <sup>[2]</sup>.

It is also known as Castleman's disease, Angiofollicular lymph node hyperplasia (AFH), giant lymph node hyperplasia. It is not a cancer, though; it is called a Lymphoproliferative disorder, meaning there is an abnormal overgrowth of cells of the lymph system that is similar to lymphomas <sup>[3]</sup>.

#### About lymph nodes and lymphoid tissue

It is important to learn about body's lymph system to understand Castleman disease. Lymphatic tissue is the main part of the immune system. The main cells in lymphoid or lymphatic tissue are lymphocytes; with 2 main types: B cells and T cells. Lymphoid tissues are found in various places throughout the body, including:

- Lymph nodes: they are bean-sized groups of lymphocytes found throughout the body, including the chest, abdomen, and pelvis, sometimes they can be felt under the skin in the neck, under the arms, and in the groin.
- Thymus: It plays a vital role in development of T cells.
- Spleen: The spleen makes lymphocytes and other immune system cells to help fight infection.
- Tonsils and adenoids
- Bone marrow
- Digestive tract: the stomach, intestines, and other organs <sup>[4]</sup>.

#### Types of Castleman's disease

CD is classified according to how much of the body it affects. The main forms of disease are called localized and multicentric.

#### Localized (unicentric) Castleman disease

This is the commonest type of CD. They only affect a single group of lymph nodes. The Lymph nodes in the chest or abdomen are affected most often. CD causes these lymph nodes to grow. Enlarged lymph nodes in the chest creates pressure on the trachea or bronchi, causing breathing problems. If the enlarged nodes are in the abdomen, the person may feel pain, a feeling of fullness, or troubled eating. Sometimes the enlarged nodes are in places such as the neck, groin, or underarm area and are first noticed as a lump under the skin.

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### Multicentric Castleman disease

It affects more than one group of lymph nodes. It may affect other organs containing lymphoid tissue. This form of symptoms sometimes occurs in people infected with HIV. People with MCD often have problems such as serious infections, fevers, weight loss, fatigue, night sweats, and nerve damage that can cause weakness and numbness.

### Microscopic subtypes of CD

Castleman disease is also classified based on how the lymph node tissue looks under a microscope. These are called microscopic subtypes.

- **The hyaline vascular type** is most common. It tends to be localized.
- **The plasma cell type** is more likely to cause various symptoms and appears to be multicentric, but it is sometimes localized also.
- **The mixed subtype** shows both hyaline vascular and plasma cell types. It occurs very less often.
- **The plasmablastic type** was recognized more recently. It is usually multicentric & causes symptoms.

### Subtypes of CD based on viral infections

Infection with specific viruses plays a role in some cases of CD. Multicentric CD is more common in persons infected with HIV. Another virus, known as human herpesvirus-8 (HHV-8) or Kaposi sarcoma herpesvirus (KSHV), is also found in multicentric CD. In fact, HHV-8 is found in the lymph nodes of nearly all CD patients who are HIV positive [5].

### Causes

The cause of Castleman disease is not known. However, infection by human herpesvirus-8 is associated with multicentric Castleman disease [4].

### Risk factors

- It may affect persons of any age.
- Average age of patients diagnosed with unicentric Castleman disease is 35.
- Most patients with the multicentric form are in their 50s and 60s.
- The Multicentric form is more common in male than in female.
- Multicentric Castleman disease is higher in people who are infected with human herpesvirus 8 [6].

### Symptoms

- Many people with unicentric Castleman disease don't notice any signs or symptoms.
- The enlarged lymph node may be detected during a physical exam or an imaging test for some unrelated problem.
- Fever
- Unintended weight loss
- Fatigue
- Night sweats
- Nausea
- Enlarged liver or spleen.

### Castleman Disease Stages

Castleman disease is not a cancer so it doesn't have a formal staging system. The most important factor for deciding the

treatment is whether the CD is unicentric or multicentric. Another important factor is whether or not the patient is infected with the HIV.

### Diagnosis

- **Lymph Node Biopsy:** This is the confirmative test to diagnose Castleman disease.
- **Blood Test** such as Complete blood count (CBC), C-reactive protein (CRP), Erythrocyte sedimentation rate (ESR), Interleukin-6 (IL-6)
- **Imaging Tests**
- An ultrasound image to get a picture of internal organs.
- A chest X-ray.
- A CT scan.
- An MRI.

A PET scan may be useful because it shows fast-growing cells in your body [4].

### Treatment

Treatment generally depends on the type of Castleman disease.

### Unicentric Castleman disease

- Surgical removal of the diseased lymph node.
- If surgical removal isn't possible, medication may be used to shrink the lymph node.
- Radiation therapy is also the effective way to destroy the affected tissue.

### Multicentric Castleman disease

- **Immunotherapy-** use of drugs such as rituximab can block the action of a protein that is produced in excess in multicentric Castleman disease.
- **Chemotherapy-** To slower the rate of growth of lymphatic cells.
- **Corticosteroids-** To control inflammation.
- **Antiviral drugs-** These drugs can block the activity of HHV-8 or HIV if there is presence of infection [6].

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