Article Series Understanding Cancer Multiple Myeloma

How blood clots and hyperviscosity can be managed in people with multiple myeloma

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1. **Why are blood clots a problem?**

Blood clotting is the natural process that stops us from bleeding excessively from a cut or wound. In some cases, the normal clotting process does not work properly, and blood clots can form inside the veins, arteries, or lungs, blocking normal blood flow. This is most common in the veins of the leg, where part of the clot can break away and travel to the lungs and block an artery or form a blood clot in the brain,

where it can cause more serious problems.

2. **Blood clotting in people with multiple myeloma**

People with multiple myeloma are at a **high risk of developing blood clots**. Multiple myeloma can change the blood, making it thicker and more likely to clot. The specific drugs and drug combinations used to treat myeloma, especially when they are used in combination with high-dose steroids or chemotherapy drugs, also increase the likelihood of a clot. The risk of a blood clot is also increased in people with multiple myeloma due to inactivity caused by pain and surgery, and having drugs administered through a central vein.

There are **some common symptoms** of blood clots that you should look out for:

- Pain, redness, or swelling in a leg or an arm
- Sudden breathlessness/shortness of breath
- Pain in the chest or upper back
- Coughing up blood
- Rapid heartbeat
- Anxiety

If you experience any of these symptoms, then it is important to **report them immediately** to your healthcare team.

3. **What is hyperviscosity?**

Hyperviscosity is a rare condition in which the blood becomes very thick. In people with multiple myeloma, there is a high level of harmful plasma cells in the bone marrow. These cells increase the production of a protein called '**M-protein**', which can make the blood thicker. In the kidneys, these M-proteins and other small proteins can combine and lead to a blockage of the kidneys – this is termed ' **myeloma kidney**'.

There are three key warning signs of hyperviscosity to look out for:

- **Neurologic problems,** such as headaches, hearing loss, and vertigo
- **Visual changes,** such as vision loss and double vision (diplopia)
- **Bleeding of the mucosal membranes**, such as in the gums and nose

Other **clinical features** of hyperviscosity may also include shortness of breath, chest pain, cardiac failure, or a heart attack. The change in the makeup of the blood may also prevent the clotting process from working properly, leading to a greater chance of forming a blood clot.

4. **Ways to help manage blood clots and hyperviscosity**

Blood clot management:

People with multiple myeloma are **regularly assessed** for their likelihood of developing a blood clot. If a blood clot is suspected, you may have an imaging test, such as an ultrasound, to confirm the diagnosis. If a blood clot is detected, your healthcare team will advise you on the most appropriate treatment depending on your situation. This may include:

- **Blood thinning medication**, known as anticoagulants. This medication thins out the blood and lowers the risk of blood clots forming or getting bigger. Some myeloma treatment combinations may increase the risk of blood clots and anticoagulants may be prescribed to prevent this from happening.
- **'Mechanical' treatments**, such as inflatable sleeves and compressive stocking. Inflatable sleeves support the healthy movement of blood in your body by inflating and deflating movement of the sleeve, and this prevents the formation of blood clots. Compressive stockings fit tightly around the ankles, legs, and thighs. These aim to reduce swelling and improve blood flow to the heart and lungs by creating a pressure that pushes fluid up the legs.

Despite these preventative measures, blood clots can still occur. It is therefore important to **be alert and to report** any potential symptoms straight away. Some factors increase your risk of developing blood clots, such as prolonged bed-bound periods (e.g., after surgery), smoking, and being seated during long flights. You can help to reduce or minimize your risk of blood clots by maintaining a healthy weight, eating a well-balanced diet that is low in fat, and exercising regularly.

Hyperviscosity management:

If your healthcare team finds that your blood is thicker than normal, they may suggest undergoing **plasmapheresis**. Plasmapheresis is a treatment that filters

blood through a machine to remove the high levels of M-proteins.