What is a Solitary plasmacytoma?

Plasmacytoma refers to a tumour consisting of abnormal plasma cells that grows within the soft tissue or bony skeleton. It can be present as a discreet solitary mass of abnormal plasma cells, in which case it is termed a "Solitary" plasmacytoma or it can be present as part of a systemic disorder - called Multiple Myeloma. Multiple Myeloma is a type of blood cancer of the plasma cells which are found in the bone marrow. The prognosis and treatment of solitary plasmacytomas is very different to multiple myeloma.

Plasma cells are a type of white blood cell that develops from mature B-lymphocytes in the bone marrow. They play an important role in protecting the body against infection and disease by producing proteins called immunoglobulins (Ig), also known as antibodies.

There are two main types of Solitary Plasmacytomas:

Solitary Bone Plasmacytoma (SBP) - where there is localised build-up of abnormal plasma cells in the bone. Most commonly, these tumours develop in the spinal column but they may also develop in the pelvis, ribs, arms, face, skull, femur, and sternum.

Or

Solitary Extramedullary Plasmacytoma (SEP) - where the clump of abnormal plasma cells occurs outside the bone in soft tissue. These plasmacytomas most commonly occur in the head and neck region, particularly in the upper airways (nose, throat and sinuses), but may also be found in the gastrointestinal tract, lymph nodes, bladder, lung or other organs.

Solitary plasmacytomas do not have the typical features of myeloma, which include low red blood cell counts, elevated calcium levels in the blood, or reduced kidney function. And although 75% of people with SBP and 25% of people with SEP have an M-protein (abnormal proteins produced by the cancerous plasma cells) present in the serum or urine, they are usually small and disappear following treatment.

Some people with SBP may go on to develop multiple myeloma (50-70%) over 10 years - so you’ll be regularly monitored with blood tests and X-Rays and/or MRI scans. There is a significantly smaller risk of progression to myeloma (<10%) with SEP.

Incidence:
A solitary plasmacytoma most commonly occurs in middle-aged or elderly people and is very rare under the age of 30. The median age at diagnosis is about a decade younger than that of people with Myeloma, 55 to 65 years, compared to a median age of 71 years for patients diagnosed with multiple myeloma.

SBPs are uncommon and make up approximately 5 percent of all of the plasma cell disorders. SEPs are even less common. Solitary plasmacytomas occur more commonly in men than women.
Causes:
It is not known what causes plasmacytomas.

Symptoms:
SBPs may cause bone pain or fractures.
SEPs cause different symptoms depending upon where the tumour is located. If, for example, the tumour is located in the back of the throat or nose it may cause nasal discharge, nose bleeds, nasal stuffiness or difficulty swallowing.

Diagnosis:
A patient is diagnosed with a solitary plasmacytoma when;

- A biopsy reveals a single tumor inside the bone or tissue comprised of abnormal plasma cells;
- Xrays, positron electron tomography (PET) or magnetic resonance imaging (MRI) scans show no other lesions in the bone or in the soft tissues;
- Bone marrow biopsy shows no evidence of myeloma; and
- Blood tests show no signs of anaemia, high calcium or reduced kidney function due to the M-protein.

Treatment:
The treatment that is used most commonly for both types of plasmacytoma is radiotherapy. This is possible because by definition, “solitary plasmacytomas” are localised. Radiotherapy involves focusing radiation (similar to X-rays) on the plasmacytoma to kill the abnormal cells. The treatment is generally given over several days to reduce side-effects. Although chemotherapy is generally not used in addition to radiotherapy, there are times when the types of medications used to treat myeloma are considered.

Surgery is rarely necessary but may be required in situations where the plasmacytoma involvement of the bone causes skeletal instability and high risk of fracture. In these cases, radiation therapy may be delayed but is still administered after the surgery.

Follow – Up:
Radiotherapy generally provides excellent local and often durable control of the plasmacytoma. However, because there is a risk that plasmacytomas may recur or progress to myeloma (particularly with SBP) all people with plasmacytomas require life-long follow-up. This generally involves physical examination, blood and urine tests, and Xrays, MRI or PET scans at regular intervals for at least the first 5 years after treatment has been completed.

The Leukaemia Foundation publishes the guides ‘Understanding Leukaemias, Lymphomas, Myeloma and Related Blood Disorders’ and ‘Living with Leukaemias, Lymphomas, Myeloma and Related Disorders: Information and Support’.

*Projections sourced from the Australian Institute of Health and Welfare (AIHW). Estimates are calculated using actual diagnoses data collected from 2007 and annually prior to this year. **These plasma cells are different to the fluid in which red and white blood cells and platelets are suspended, which is also known as plasma.