CONDITION

Essential thrombocythemia

Essential thrombocythemia is a long-term blood condition in which the bone marrow makes too many platelets.

WHAT IT IS
Chronic blood condition causing too many platelets

BODY SYSTEM
Blood and bone marrow

MAIN SYMPTOMS
Headaches, vision changes, burning extremities, blood clots

WHAT CAUSES IT
Acquired gene changes, usually not inherited

HOW IT IS DIAGNOSED
Blood counts, gene tests, and bone marrow biopsy

MAIN TREATMENT
Antiplatelet medicines and platelet-lowering treatment

CAN IT BE CURED?
No - treatment controls, not removes it

IS IT AN EMERGENCY?
Sometimes - stroke, heart attack, or major bleeding signs

LONG-TERM OUTLOOK
Often many years with monitoring and treatment

Overview

Essential thrombocythemia, or ET, is a long-term condition in which the bone marrow makes too many platelets. Bone marrow is the soft tissue inside bones where blood cells are produced. Platelets help blood clot after an injury.

ET is a myeloproliferative neoplasm, a group of conditions in which the bone marrow produces too many blood cells. It is classified as a type of blood cancer, but it often develops slowly and may remain stable for many years.

Too many platelets can increase the risk of abnormal blood clots, which may block blood flow to the brain, heart, lungs, abdomen, arms, or legs. Less often, ET causes bleeding because very high numbers of platelets may not work normally.

Some people have no symptoms, and ET is found during a routine blood test. Treatment and monitoring can reduce the risk of complications.

Symptoms

ET does not always cause symptoms. When symptoms occur, they may result from changes in blood flow through small vessels or from a larger clot.

Possible symptoms include:

A leg clot can cause one-sided swelling, pain, warmth, or redness. A clot in the lungs may cause sudden breathlessness or chest pain. A clot affecting the brain can cause weakness, speech problems, confusion, or loss of vision.

These symptoms can have other causes, and a high platelet count does not automatically mean you have ET.

- Headaches, dizziness, or light-headedness
- Blurred vision, flashing lights, or brief vision changes
- Burning pain, warmth, or redness in the hands or feet
- Tingling or numbness
- Unusual bruising, nosebleeds, or bleeding gums
- Tiredness or difficulty concentrating
- Fullness or discomfort under the left ribs from an enlarged spleen

Causes and risk factors

ET usually begins with an acquired mutation in the DNA of a blood-forming stem cell in the bone marrow. This change develops during life. It is generally not inherited from a parent or passed directly to a child.

Most people with ET have a mutation involving the JAK2 , CALR , or MPL gene. These genes help control blood cell production. A mutation can leave growth signals switched on, causing excess platelet production. Some people do not have any of these mutations.

The reason the mutations develop is often unknown. ET is more common in older adults but can occur at any age.

Factors affecting the risk of clots or bleeding include age, previous clots, the mutation involved, other health conditions, and the platelet count. Smoking, high blood pressure,

diabetes, and high cholesterol add to cardiovascular risk.

Diagnosis

A single high platelet result does not confirm ET. Platelets may rise because of infection, inflammation, iron deficiency, recent surgery, blood loss, or some cancers. This is called reactive or secondary thrombocytosis.

Diagnosis usually involves repeated complete blood counts to confirm that the platelet level remains raised. A blood film examines blood cells under a microscope. Other tests may check for iron deficiency, inflammation, liver or kidney problems, and other possible causes.

Molecular tests look for JAK2 , CALR , and MPL mutations. A positive result supports the diagnosis, but a negative result does not rule it out. Testing may also look for BCR::ABL1 , a gene change associated with chronic myeloid leukaemia.

A bone marrow biopsy is usually needed to examine platelet-producing cells and distinguish ET from related conditions. A small sample is commonly taken from the back of the hip under local anaesthetic.

Diagnosis is based on the platelet count, bone marrow appearance, gene test results, and exclusion of other causes. A haematologist usually oversees the assessment.

Treatment and management

Treatment aims to reduce clots and bleeding, control symptoms, and monitor changes. It does not usually eliminate the abnormal bone marrow cells.

Management depends on clotting history, age, mutation results, bleeding risk, symptoms, other conditions, and personal circumstances-not only the platelet count.

People at lower risk may need regular monitoring without platelet-lowering medicine. Follow-up usually includes blood counts and review of new symptoms.

Low-dose aspirin may make platelets less sticky and relieve small-vessel symptoms. It is not suitable for everyone and can increase bleeding, particularly when platelet levels are extremely high or another bleeding risk is present. Do not start aspirin for ET without medical advice.

Cytoreductive medicines reduce blood cell production. Options include hydroxycarbamide, also called hydroxyurea, interferon, and anagrelide. The choice depends on age, pregnancy plans, other conditions, side effects, and previous treatment response. Regular blood tests check safety and effectiveness.

Plateletpheresis, which removes platelets directly from the blood, is rarely needed. It may be used during a serious clotting or bleeding emergency while other treatment starts.

Pregnancy requires care shared between haematology and specialist maternity teams. Many pregnancies are successful, but ET increases the risk of clots and pregnancy complications. Treatment may need to change before conception or during pregnancy. Do not stop or change medicine without specialist guidance.

Stopping smoking, staying active within your abilities, and managing blood pressure, cholesterol, and diabetes are also important.

Complications

The main complications are abnormal blood clots and bleeding.

An arterial clot can cause a stroke, transient ischaemic attack, or heart attack. Clots may also form in veins, including those in the legs, lungs, or abdomen.

Bleeding can include frequent nosebleeds, easy bruising, digestive-tract bleeding, or heavy bleeding after an injury. Extremely high platelet levels can reduce a clotting protein called von Willebrand factor, increasing bleeding risk.

An enlarged spleen may cause discomfort under the left ribs, fullness after small meals, or reduced blood cell counts.

Over time, ET can occasionally change into myelofibrosis, in which scar tissue builds up in the bone marrow. It can also rarely progress to acute myeloid leukaemia. These changes are not expected for most people, but long-term monitoring helps detect them.

Prevention

There is no known way to prevent ET because its gene changes are usually acquired by chance.

You can reduce other clot risks by not smoking, staying active, attending monitoring appointments, and taking prescribed treatment. Blood pressure, diabetes, and cholesterol should be managed.

Long periods without movement increase clot risk. During travel or recovery from illness or surgery, follow the movement, hydration, and clot-prevention advice given for your situation.

Living with it and what to expect

ET is usually lifelong. Platelet levels may rise or fall, and treatment may need adjustment. A changing count does not always mean the condition is worsening; results are assessed alongside symptoms and other tests.

Many people continue working, exercising, travelling, and doing their usual activities. Some experience fatigue, headaches, concentration problems, or burning discomfort in the hands and feet. Tell your care team if symptoms affect daily life, even when blood counts appear controlled.

Follow-up may include blood counts, checks for treatment side effects, assessment of clotting or bleeding symptoms, and examination of the spleen. New anaemia, unexplained weight loss, drenching night sweats, fever, an enlarging spleen, or major blood-count changes may require further assessment.

The outlook is often measured in many years, particularly when clotting risks are managed. It depends on age, previous clots, mutation type, other health conditions, and whether ET changes into another bone marrow condition.

Ask your team for guidance about medicines, travel, pregnancy, dental treatment, and planned surgery.

When to get medical help

Call emergency services immediately for symptoms that could indicate a stroke, heart attack, clot in the lungs, or major bleeding, including:

Seek urgent medical advice for new one-sided leg swelling or pain, repeated bleeding, black or bloody stools, blood in the urine, or suddenly worsening headaches or vision problems.

Contact your haematology or primary care team if symptoms gradually change, side effects are difficult to manage, or you have questions about pregnancy, travel, surgery, dental work, or new medicines. Keep follow-up appointments even when you feel well.

- Sudden weakness or numbness on one side
- A drooping face, new speech difficulty, or sudden confusion
- Sudden loss of vision or a severe, unfamiliar headache
- Chest pressure, severe chest pain, or sudden breathlessness
- Coughing or vomiting blood
- Heavy bleeding that does not stop

- Collapse, fainting, or severe drowsiness

Common questions

Is essential thrombocythemia cancer?

ET is classified as a chronic blood cancer called a myeloproliferative neoplasm. However, it often behaves differently from faster-growing cancers. Many people live with it for years while receiving monitoring and treatment to reduce complications.

Can my platelet count go back to normal?

Treatment can bring the count closer to a target range, and counts may change naturally. This does not mean ET has been cured. Decisions also consider symptoms and clotting risk, not just the platelet number.

How long can you live with essential thrombocythemia?

Many people live for many years after diagnosis, and some have a lifespan close to what would otherwise be expected. Outlook depends on age, clotting history, gene mutations, other conditions, and whether ET changes over time.

Is there a diet that lowers platelets?

No food or diet has been shown to treat ET or reliably lower platelet counts. A balanced diet supports heart and blood vessel health. Check before taking supplements or herbal products because some affect bleeding or interact with medicines.

Can I exercise with essential thrombocythemia?

Regular activity is usually encouraged. The safest type and intensity depend on symptoms, bleeding risk, previous clots, and other conditions. Contact sports may be unsuitable if you bleed easily or have an enlarged spleen.

Can essential thrombocythemia turn into leukaemia?

ET can rarely progress to acute myeloid leukaemia or change into myelofibrosis. Most people do not experience these changes, but continued follow-up is important.

Sources

- National Health Service: Essential thrombocythaemia
- National Cancer Institute: Myeloproliferative Neoplasms Treatment

- Leukemia & Lymphoma Society: Essential thrombocythemia
- Tefferi A, Vannucchi AM, Barbui T. Essential thrombocythemia: 2024 update on diagnosis, risk stratification, and management. American Journal of Hematology. 2024;99(4):697-718
- Arber DA, Orazi A, Hasserjian RP, et al. International Consensus Classification of Myeloid Neoplasms and Acute Leukemias. Blood. 2022;140(11):1200-1228
- Barbui T, Tefferi A, Vannucchi AM, et al. Philadelphia chromosome-negative classical myeloproliferative neoplasms: revised management recommendations from European LeukemiaNet. Leukemia. 2018;32:1057-1069