

# S34 Diagnosing Ankylosing Spondylitis With Medical Imaging

## Objectives:

- Define ankylosing spondylitis
- Compare x-ray and MRI as modalities used to diagnose ankylosing spondylitis

## What is Ankylosing Spondylitis?

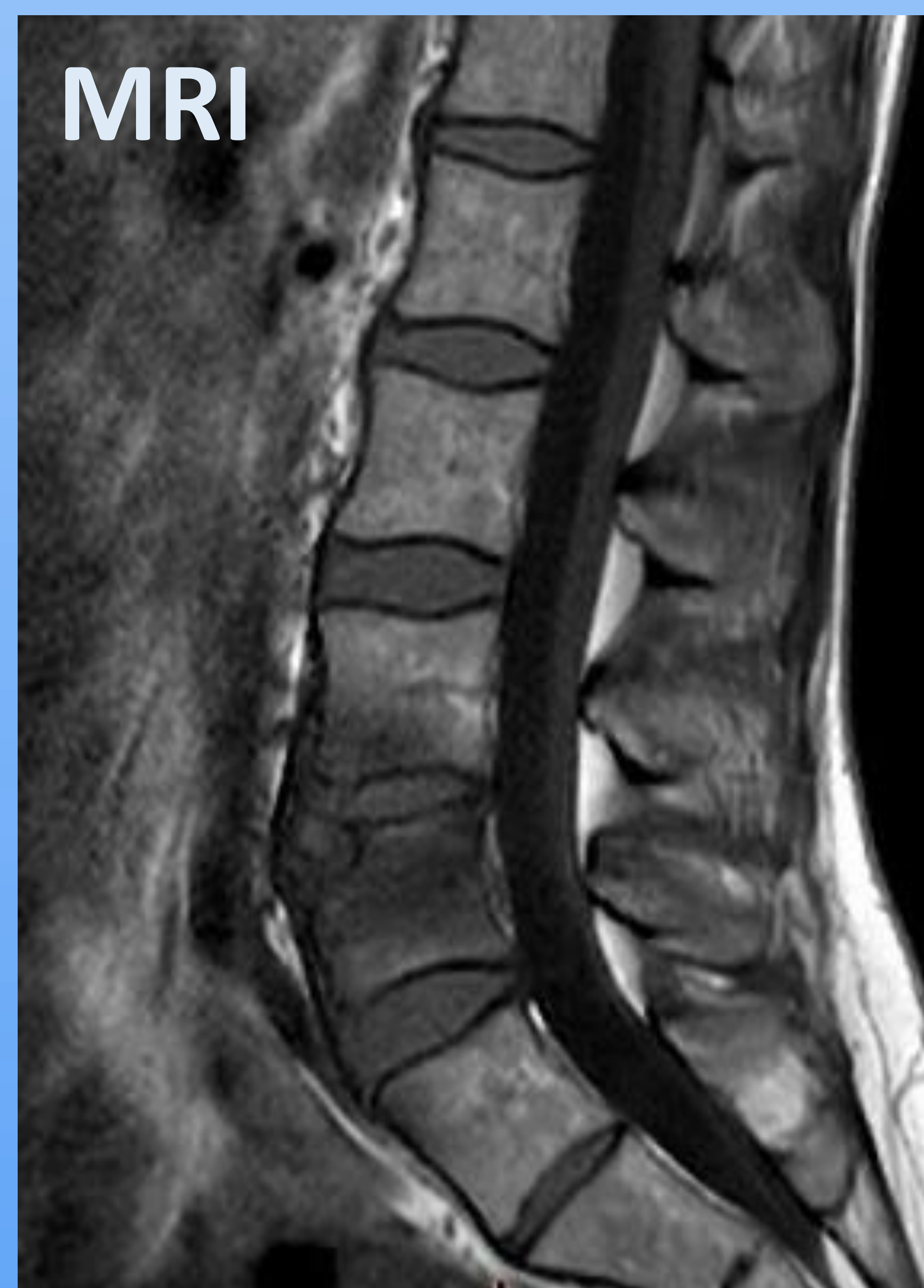
Ankylosing spondylitis, also known as “Bamboo Spine”, is an autoimmune disease. It is a type of arthritis that causes inflammation in the joints of the spine. Ankylosing spondylitis typically begins in the sacroiliac joints and spreads to the joints between the vertebrae in the spine. Over time the vertebrae can develop bone spurs and the vertebrae can actually fuse together.

Common symptoms of ankylosing spondylitis are back pain, stiffness, gastrointestinal problems, fatigue, and vision issues. Men are more likely than women to develop ankylosing spondylitis and it usually develops before the age of 40.

## Advantages and Disadvantages of X-RAY

The use of x-rays is considered the gold standard when it comes to diagnosing ankylosing spondylitis. This is due to several key advantages of x-ray. X-rays have high spatial resolution as well as high contrast between bone and soft tissue. They are excellent at demonstrating skeletal structures and showing bone alignment and possible trauma. Another benefit of x-rays is that they are relatively inexpensive and widely available. Usually only a few images are taken, such as an AP and lateral, and this means that the radiologist can read the images fairly quickly.

There are a few disadvantages of x-ray, however. The main disadvantage is that it can be impossible to distinguish between different soft tissues. Muscles, tendons, ligaments, and cartilage all have the same radiographic density. This means that ankylosing spondylitis can be difficult to detect in its early stages when the bones haven't been affected yet. Another disadvantage is that x-rays are two-dimensional. This limits the amount of anatomy that the radiologist can see. X-rays also use ionizing radiation. Although minimal amounts are used, no amount of radiation can be considered completely safe.



## Advantages and Disadvantages of MRI

Magnetic resonance imaging, also known as MRI, can be a very useful modality when it comes to diagnosing and monitoring ankylosing spondylitis. The biggest advantage of MRI is its ability to demonstrate contrast between soft tissues. This means that it is more sensitive to detecting inflammation and can detect ankylosing spondylitis in its early stages. Another advantage is that MRI exams are three-dimensional. This means that the radiologist can see all aspects of the anatomy. MRI also does not use ionizing radiation and therefore patients are not at risk of any potential side effects from radiation.

There are a few disadvantages of MRI. The biggest disadvantage is the cost. MRI exams are very expensive, and many insurance companies do not want to pay for them. They can also be very time consuming. MRI exams can range from a few minutes to over an hour. Some patients can experience claustrophobia while in the MRI machine. MRI exams are also less available. Not all clinics have MRI machines, especially in more rural areas.

## Conclusion

**Ankylosing spondylitis is an autoimmune disease that primarily affects men under 40. The disease causes inflammation in the joints of the spine. Over time the vertebrae can fuse together and cause severe back pain.**

**Ankylosing spondylitis is primarily diagnosed with the use of x-rays. X-rays are fast and affordable and can easily demonstrate details of bone structures.**

**MRI can be helpful in the early stages of ankylosing spondylitis because it can differentiate between soft tissues. However, MRI can be expensive and time consuming.**

**Overall, both modalities have their pros and cons when it comes to diagnosing ankylosing spondylitis.**