

To understand the answer we need to know few basics of pain.

For back pain, there are two main types i.e inflammatory back pain and mechanical back pain.

Following table helps us to know the difference.

	Inflammatory back pain	Mechanical back pain
Age at onset	<40 y	Any age
Onset	Insidious and persisting for >3 mo	Variable
Features	Alternating buttock pain and awakening because of back pain in the second half of the night only	Variable
Effect of physical activity	Improves with exercise	Improves with rest
Morning stiffness	Moderate and persisting for >30-45 min	Mild and short lived
Inflammatory markers	Commonly elevated	Normal

This shows that the patient in discussion having inflammatory type of back pain.

Any young patient with inflammatory back pain should be evaluated for ankylosing spondylitis specially when they have family history.

To diagnose ankylosing spondylitis (seronegative spondyloarthritis[SpA]) we must make use of ASAS criteria as depicted below.

ASAS classification criteria for axial spondyloarthritis (SpA)

In patients with ≥ 3 months back pain and age at onset < 45 years

Sacroiliitis on imaging*
plus
 ≥ 1 SpA feature#

or

HLA-B27
plus
 ≥ 2 other SpA features#

#SpA features

- inflammatory back pain
- arthritis
- enthesitis (heel)
- uveitis
- dactylitis
- psoriasis
- Crohn's/colitis
- good response to NSAIDs
- family history for SpA
- HLA-B27
- elevated CRP

*Sacroiliitis on imaging

- active (acute) inflammation on MRI highly suggestive of sacroiliitis associated with SpA
- definite radiographic sacroiliitis according to mod NY criteria

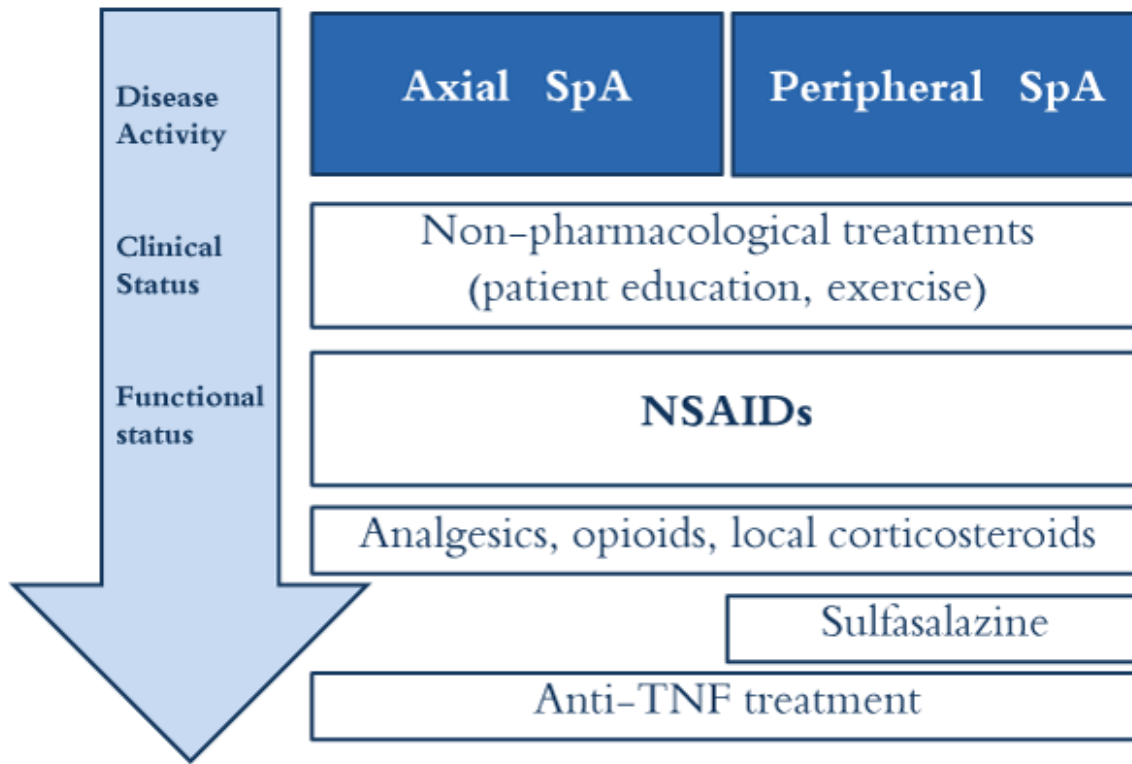
From the MRI image provided in question, it shows features of sacroiliitis in STIR image (second image with arrow). [Though it is a LS spine MRI additional S.I joint imaging has been done.] The rest of LS spine appears normal.

Patient has additional SpA feature (see above table) i.e family history and uveitis.

So when there is a confirmed imaging with one or more SpA features diagnosis of ankylosing spondylitis (seronegative spondyloarthritis [SpA]) is almost certain.

More over from the options provided in question, other differential to be considered is TB spine (Potts spine), But LS spine is not suggestive of the same.

Once diagnosed treatment options are very clear as below.



So first line of treatment after non pharmacological methods would be NSAIDs hence answer is 3.