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What are the known risk factors for development of PAO?
*PAO can occur in women with no apparent risk factors, and women with numerous risk
factors do not necessarily develop the disease.

❏ Inadequate nutritional intake before or during pregnancy impacting bone health:
❏ Hyperemesis
❏ Coeliac disease,

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Progression of pain
● Pain improves for a short period before getting significantly worse, possibly due to further
fractures occurring, with a further reduction in functioning
or
● Pain improves as fractures heal but pain may be prolonged and not fully resolve due to
changes in biomechanics and joint loading in the spine as well as irritation of the nerves and
muscles around the spine (MSK / nerve pain)
● Pain that is reported as electric, shooting, knife-like may indicate nerve pain
● Pain may resolve fully in time

Physical appearance changes
● Loss of height
● Curved or kyphotic posture
● Stomach protruding more than prior to fractures (due to new kyphotic posture)

What treatments are currently available?
● There is no standard treatment protocol so far. In addition to rest, movement modification,
treatments to ease pain and nutritional support, appropriate specialist care may be required
and could include:
○ GP: coordination of specialists, assessment of nutrient deficiencies through blood
tests, elimination of other causes of low BMD and fracture (e.g. myeloma/bone
cancer)
○ Rheumatologist: medical management of osteoporosis, including medications
○ Endocrinologist: medical management of osteoporosis and/or hormonal conditions
impacting bone health
○ Pain Clinics / Specialists – specialist advice coping with fracture pain & associated
MSK & also possible associated nerve pain
○ Breast-feeding Specialists – PAO Mothers at diagnosis are usually advised to
immediately stop breastfeeding
○ Neurosurgeon: assessment of spinal fragility and guidance on rehabilitation
○ Orthopaedic Spinal Surgeons eg. In selective cases, treatment may sometimes
include vertebroplasty, the injection of medical grade cement into the vertebra to help
diminish pain and restabilise the spine, although this is controversial and can also
result in further spinal fractures. eg, Depending on individual cases, surgeons can
carry out interventional surgical procedures to assist with reducing pain & recovery
○ Nutritionist: guidance regarding dietary changes to support bone health
○ Osteoporosis physiotherapists: enable safe return to movement & strength-building
● In the UK, doctors with specialist experience in PAO will assess and determine whether to
allow women’s bones to heal naturally or to prescribe medicines like teriparatide or
bisphosphonates.

What is the prognosis?
● Doctors do not fully understand the disease trajectory.
● Some women recover, either naturally or with medical assistance, but their ongoing quality of
life is currently being researched https://www.ed.ac.uk/centre-genomic-medicine/research-groups/ralston-group/pao-study
● Other wome

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o The RNOH is currently in 2023 researching the mental health impact and quality of life
impact of PAO on both mothers and fathers, with interviews and new qualitative
research – rnoh.ploresearch@nhs.net
o The University of Edinburgh 2022-2023 research also reviews
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x Risk Factors, fractures and management of pregnancy-associated osteoporosis: a retrospective
study of 14 Turkish patients, Gynecol Endocrinol. 202 March; 36 (3) : 238-242
x Pregnancy-related fractures: a retrospective study of a French cohort of 52 patients and review of
the literature, Laroche, M. et. al. 2017, Osteoporos Int. 2017, Nov 28 (11): 3135-3142
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