原文題目(出處)：	Panoramic Radiography in the Diagnosis of Carotid Artery Atheromas and the Associated Risk Factors. The Open Dentistry Journal, 2011,5,79-83
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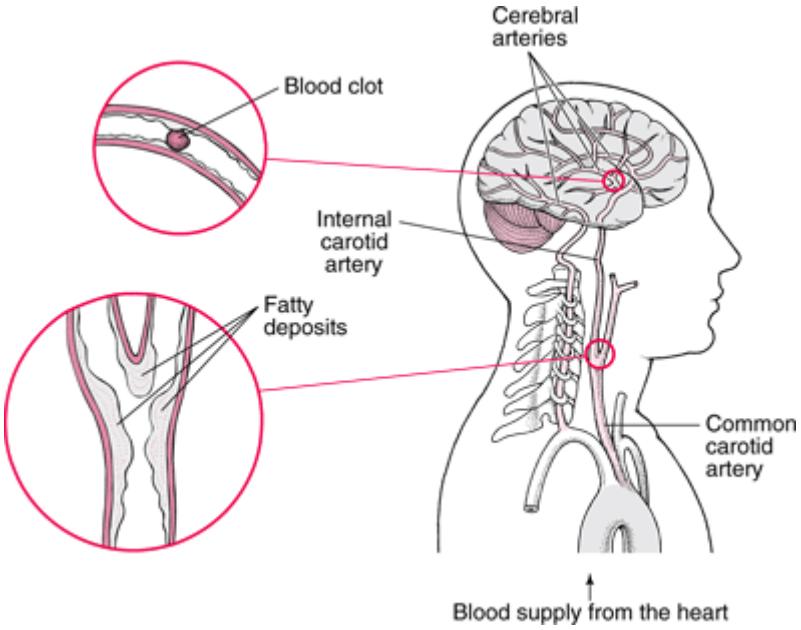
內文：

1. What are **atheroma** and **atherosclerosis**?

- ✧ **Atheroma**：**calcified plaques** especially composed of lipids and fibrous tissue→ deposited on the walls of blood vessels→trigger atherosclerosis.
- ✧ **Atherosclerosis**：a **chronic inflammatory** disease of an immunological nature, characterized by thickening and loss of elasticity of the arterial walls, associated with the presence of atheromas.



- ✧ When affect the **carotids** (supply the brain)→strokes
- ✧ when affect the coronary (supply the heart)→ myocardial infarction
- ✧ result in the death of thousands of people all over the world

2. **Etiopathogenesis**

- ✧ atherosclerotic disease, an inflammatory disease of an immunological nature.

✧ metabolic, nutritional, hypertensive abnormalities, and even viral and bacterial infections

→ **vascular endothelium injured**

➔ **inflammatory** environment developed： multiple interactions among platelets, T lymphocytes, macrophages, smooth muscle cells, adhesion molecules and genetic components

→ propagate the pathological condition

→accumulation of low density **lipoproteins (LDL)** in the intimate layer of the endothelium→ **atheromatous plaque**

→**superimposition of calcium deposits**

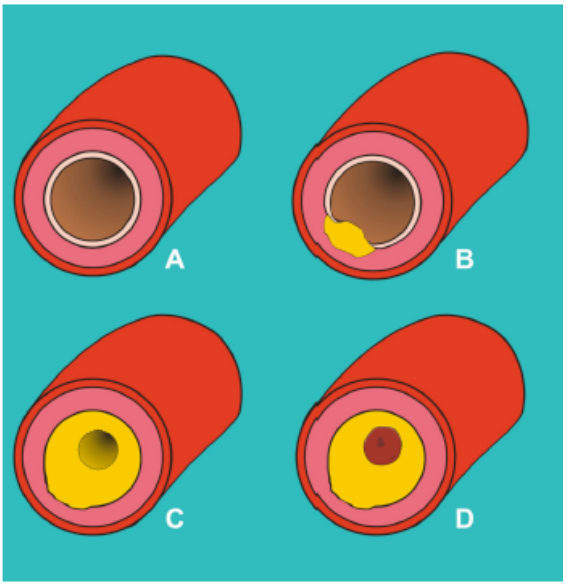


Fig. (1). Simplified diagram of the development of atherosclerosis showing: Cross sectional cut of the artery when it was still whole (**A**); initial injury of the endothelium (**B**); the atheromatous plaque formed (**C**) and a thrombus associated with the plaque, completely obstructing the hollow passage of the vessel (**D**).

3. **Risk factors**

✧ Diabetes mellitus

➔ complex metabolic disturbance

➔ complications： Coronary artery diseases, cerebrovascular diseases, peripheral vascular diseases, difficulty in wound healing and in terms of oral manifestations, xerostomia and greater susceptibility to developing periodontal disease

➔ the high risk of stroke in diabetic patients is irrespective of the treatment modality used

✧ Obesity

➔ atherosclerosis presents as early as the first decade of life

➔ habits normally present in society nowadays have determined the increase in obesity parallel to atherosclerotic disease

✧ Arterial hypertension

✧ Smoking

➔ favoring a quantitative increase in bad cholesterol(LDL) and diminishing good cholesterol (HDL)

➔ increase blood carbon monoxide→ elevating the risks of lesions to the lining of the arterial wall

✧ Alcoholism

➔ play a very antagonistic role, favoring atherosclerosis

➔ in moderate quantity has a protective action

✧ Inadequate diet and eating habits

➔ high levels of cholesterol

➔ fatty acids saturated →↑total cholesterol and LDL levels
unsaturated mono- → anti-atherogenic effects
poly-

➔ anti-atherogenic effects： ↓plasmatic LDL ,↑HDL , ↑vasodilatation, and↓platelet aggregation

✧ Chronic renal disease

✧ Menopause

The reduced estrogen hormone levels and the other aging processes associated with menopause→ increase the stroke risks in women

✧ Others

sedentarism, stress, hyperhomocysteinemia, radiotherapy of the head and neck, the obstructive sleep apnea syndrome, aging and being of the male gender

✧ more risk factors present => greater chance of atherosclerosis

4. **Panoramic radiography and atheromas in carotid artery**

✧ even partial calcifications can be observed in pano. radiographs

✧ One of the image exams most requested in dentistry

✧ findings：

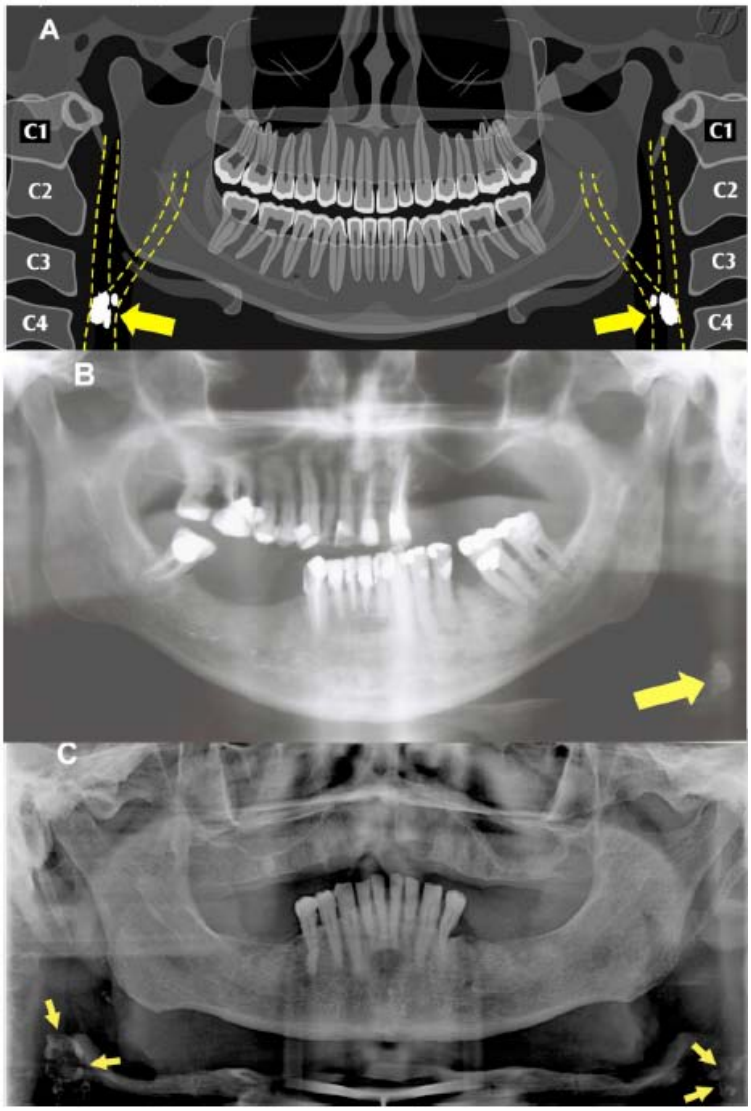
✓ one or more irregular RO

✓ eventually punctuated by vertical-linear radiolucent areas,

✓ with single or multiple affections, of varied sizes,

✓ localized approximately 2.5 cm posterior and inferior to the mandibular angle, adjacent to the space between vertebrae C3 and C4,

✓ uni- or bilaterally

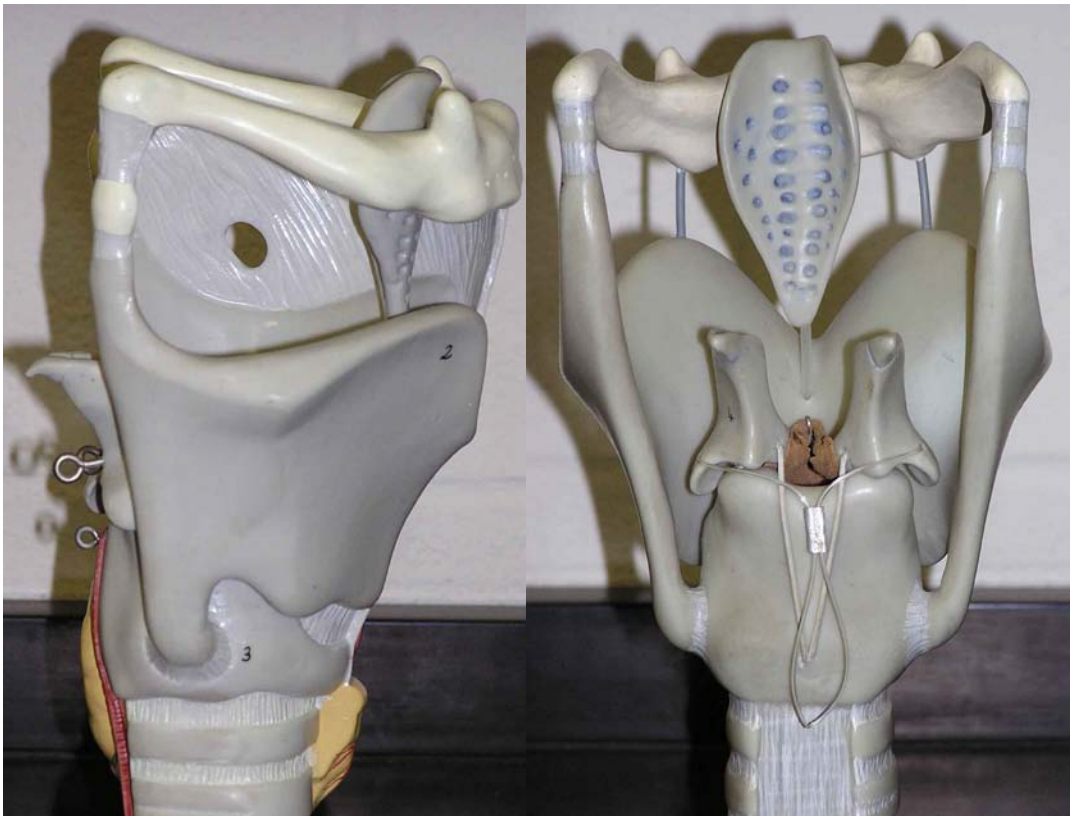


✧ Why is PANO?

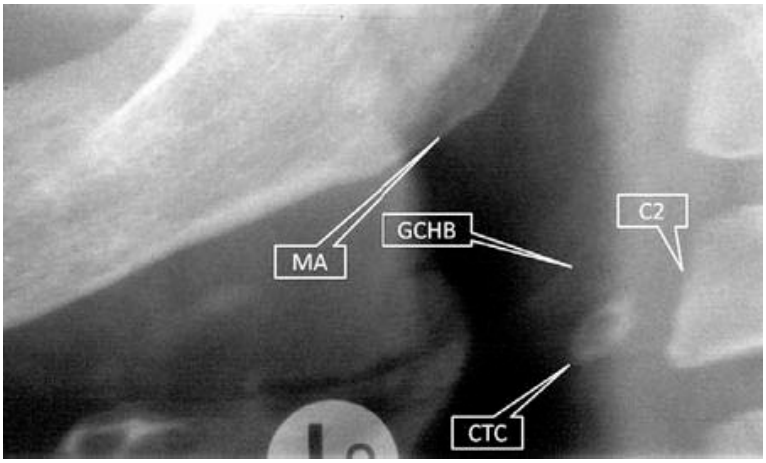
✓ low doses of radiation, low cost and has technical simplicity

✓ normally deposited along the ascendant trajectory of the common carotid artery that bifurcates into internal and external carotid arteries→ comprised within the area of coverage

✧ D.D. the ***triticeal cartilages***



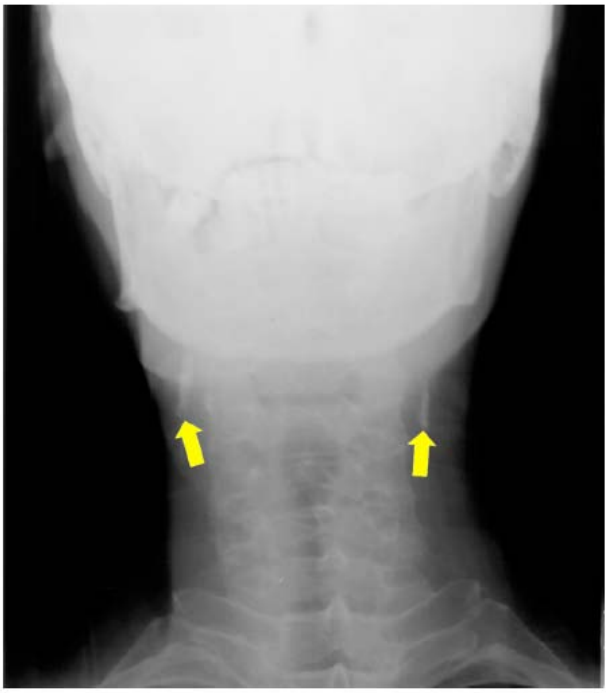
- ✓ between the hyoid bone and the thyroid cartilage
- ✓ on the posterior free edge of the lateral thyro-hyoid ligaments
- ✓ The function is believed to strengthen the thyro-hyoid ligament
- ✓ of a hyaline nature and calcified as the individual aging
- ✓ ***findigs*** **：** homogeneous RO when calcified,
  regular oval shapes,
  approximately 2 to 4 mm wide, 7 to 9 mm long,
  usually superimposed on the airspace of the pharynx
  close to the superior portion of vertebra C4



- ✓ the atheromas have a more lateral anatomic localization

✓ ***the best way to differentiate***：The antero-posterior radiograph taken by means of the Modified Towne technique

⇨ atheromas disposes laterally to the vertebrae, whereas the triticeal cartilages will practically not be observed



✧ The precision of the pano in detecting carotid artery atheromas has been continually tested

5. More specific imaging exams

✧ **The thermograph and computerized tomography**：the real extension and localization of calcifications with precision, as well as the degree of obliteration of the carotid artery involved

✧ **Ultrasonography with Doppler**：the **gold standard**, noninvasive and inexpensive , with very low morbidity

6. Conclusion

When dentists are faced with a suspicion of the presence of carotid artery atheromas in panoramic radiographs, they play a important role in guiding and immediately referring their patients to doctors for adequate medical treatment, thus contributing to many lives possibly being saved.

題號	題目
1	在 Pano 片中，哪個解剖構造最需要跟頸動脈粥狀硬化斑塊做 D.D.? (A) Calcified Stylohyoid Chain (B) Calcified Triticeous Cartilage (C) Calcified Superior Cornu of the Thyroid Cartilage (D) Calcified Tonsils

答案(B)	出處：Soft Tissue Calcifications in the Neck: Maxillofacial CBCT Presentation and Significance (From the Spring 2010 AADMRT Newsletter) William C. Scarfe et al. University of Louisville School of Dentistry http://www.aadmrt.com/static.aspx?content=currents/scarfefarman_spring_10
題號	**題目**
2	如果發現 pano 中疑似頸動脈粥狀硬化斑塊的 RO，有 risk factors，但是難以跟 Calcified Triticeous Cartilage 分辨時，首先要考慮以哪種影像作確認?
	(A) Thermograph (B) CT (C) Ultrasonography with Doppler (D) PA view x-ray with Modified Towne technique
答案(D)	出處：本文