

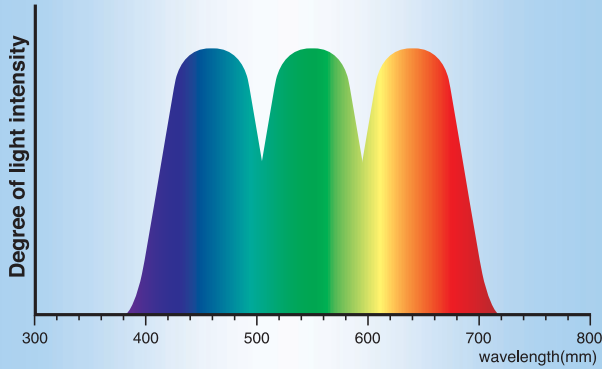


Narrow Band Imaging™-NBI



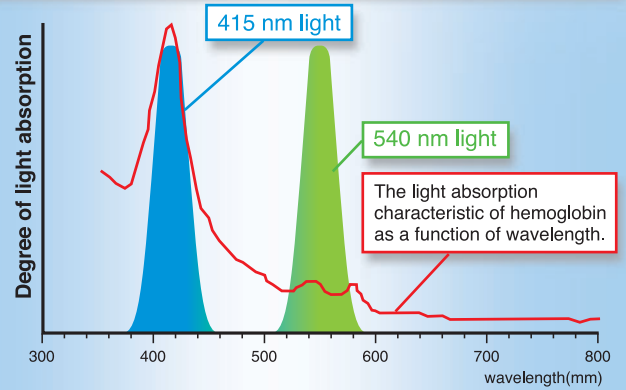
Narrow Band Imaging™ (NBI) is an optical image enhancement technology that enhances vessels in the surface of the mucosa by employing the light absorption characteristic of hemoglobin at a specific wavelength.

Conventional White Light

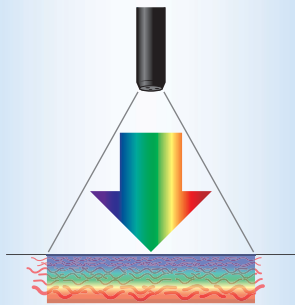


White light is composed of an equal mixture of RGB wavelengths.

Narrow Band Imaging™-NBI

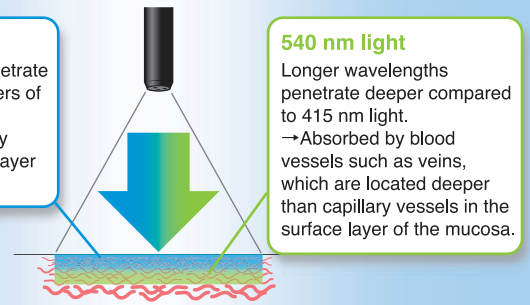
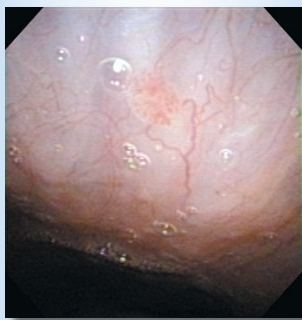


The narrowband light is composed of two specific bands that are strongly absorbed by hemoglobin.



Short wavelengths have shallow penetration characteristics whereas long wavelengths penetrate deeper into the mucosa.

Normal processing

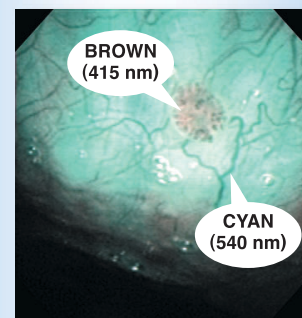


415 nm light
Short wavelengths penetrate only the superficial layers of the mucosa.
→ Absorbed by capillary vessels in the surface layer of mucosa.

540 nm light
Longer wavelengths penetrate deeper compared to 415 nm light.
→ Absorbed by blood vessels such as veins, which are located deeper than capillary vessels in the surface layer of the mucosa.

NBI processing by new processor CV-180

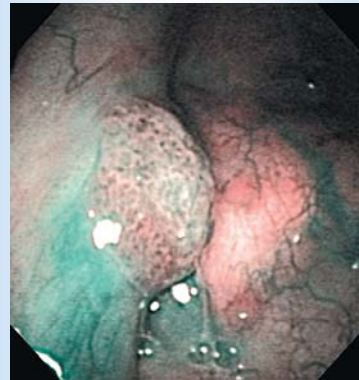
- Image obtained by 415 nm → BROWN
- Image obtained by 540 nm → CYAN



Pathological diagnosis: Squamous cell carcinoma in situ of oropharynx

Comments:

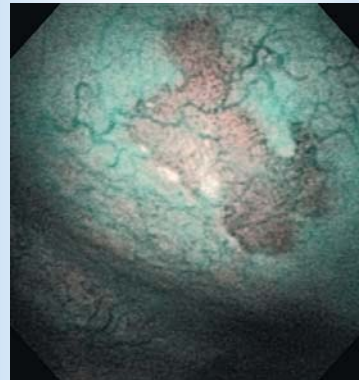
The conventional white light endoscopic view shows a slightly reddish area in the posterior wall of the oropharynx. An NBI imaging view shows a clearly demarcated brownish area in the posterior wall of the oropharynx.



Case 1 Pathological diagnosis: squamous cell carcinoma

Comments:

An elevated lesion can be seen in the left pyriform sinus. Dilatation of superficial mucosal vessels can be clearly observed with NBI.



Case 2 Pathological diagnosis: squamous cell carcinoma in situ

Comments:

A slightly depressed squamous cell carcinoma in situ is recognized as a clearly demarcated brownish area in the posterior wall of the hypopharynx. Such a lesion is observed more clearly in the NBI view than in the conventional white light view. NBI enhances a color contrast between carcinoma in situ and normal mucosa.



Case 3 Pathological diagnosis: squamous cell carcinoma

Comments:

Squamous cell carcinoma can be seen in the left pyriform sinus. Under NBI, the boundary of a tumor can be more clearly observed than under conventional white light.

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