Introduction to basic clinical principles

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Monday 1st June 2026

Objectives

Explain the importance correct posture

Explain the correct use of dental mirrors

- There is a wealth of evidence in the dental literature which highlights the potential physical strains of practising dentistry.
- Research by Brown *et al*. in 20101 looked into reasons for early retirement due to ill health among dentists.
- Of 189 dentists questioned, the most common cause of ill health retirement was musculoskeletal disorders.
- A similar situation is seen with dental nurses and hygienists and therapists alike

Posture

- Prior to the 1950s it was common for the dental chair to be in an upright position with the clinician standing up throughout treatment.

- However, with the ever-increasing precision and complexity involved in dentistry along with an increase in patient expectation, procedures are taking longer and the operator commonly treats patients in a seated position for the majority of operative procedures.

- In order to obtain adequate vision and access for periodontal and restorative treatments, operators and dental nurses may be inclined to twist their necks and backs.

- Incorrect working posture is the major cause of musculoskeletal problems in dentistry.

Correct patient position

- The patient chair should be completely flat to keep the patient completely horizontal.
- This is an absolutely essential part of working in the correct posture which is often overlooked.
- Some patients may express a dislike of the sensation of the dental chair moving back into this horizontal position.
- One way of combatting this may be to have the chair in the horizontal position before the patient sits in the chair, much like how a patient may mount the bed in hospital or when visiting a general practitioner.

It is important to note that some medical conditions may preclude a patient from being completely horizontal such as pregnant patients, those with hypertension or spinal problems.

The vertical height should be adjusted so that the operator has good vision of the patient’s mouth without having to bend too far forward. This is usually at the operator’s mid sternal (or heart) level.

Correct posture for the operator

- ✔ The operator should sit as close as possible to the patient to avoid having to bend the back too much
- ✔ Both feet should be on the ground
- ✔ The upper border of the thighs should be slightly bent
- ✔ The long axis of the torso should be vertical (ie the back should be straight!)
- ✔ Both shoulders should be horizontal (not raised)
- ✔ Both arms should be in light contact with the rib cage

Correct posture for the dental nurse

- Feedback from nursing staff suggests that often operators easily forget about the dental nurse's posture.

- It is essential that the dental nurse avoids repeatedly changing posture by twisting and leaning over as this repeated strain will lead to musculoskeletal problems.

Dental nurse should sit higher than the operator

- This allows the dental nurse to gain good vision of the oral cavity by seeing over the operator's hands.
- Many dental nurses sit at the same height as the operator.
- This can cause back strain, as in order to reach the patient's mouth the dental nurse has to lean across the patient's body and side who then passes them to the operator when they are needed.
- In theory the operator should not need to move their eyes from the patient's mouth, avoiding having to bend and twist to reach instruments.

Operating stool

- In recent years numerous manufacturers have developed operating stools which are designed to improve working posture.

- The manufacturers of the Saddle Seat claim that it can alleviate many of the problems associated with muscle fatigue by ensuring that the natural ‘S’ shape curve of the spine is maintained.

Magnifying loupes

- These are optical systems worn by the operator which magnify the image of the patient's teeth.
- As well as the obvious benefits of improved vision of the oral cavity they can also help to promote good posture by being set up so that they only give a clear image when the operator has an upright posture.

Mouth Mirrors

- Mouth mirrors were introduced in the early 19th century.
- The earliest mouth mirrors were made of highly polished bronze.

Parts of a mouth mirror

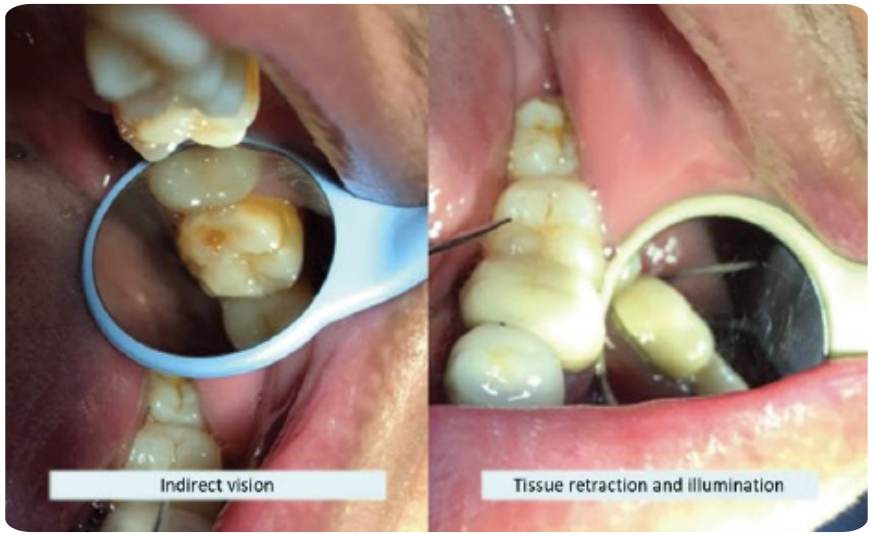
- Working end;
- Shank;
- Handle.
- The shank of the mirror connects the working end (rimmed mirror) with the handle.
- A mouth mirror can be manufactured either as a single unit (the non-detachable mouth mirror) or, alternatively, with the working end attached to the shank, which in turn is detachable from the handle.
- The non-detachable mouth mirrors, where the rim, shank, and handle are made of polymer, are either disposable or autoclavable

Mouth mirror

- The working end can be classified on the basis of several parameters, such as the shape, size and the nature of the reflective surfaces.
- The head of a mouth mirror is usually round, but tear-drop, oval and rectangular shapes are also available.

- The reflective surface of a rear surface mirror can be plane or concave.
- Flat or plane surface mirrors are preferred because they provide a clearer image.
- Concave mirrors, on the other hand, are used to magnify the image but can be distorted.

Need for mouth mirrors



- The mouth mirror is a basic tool used to see inaccessible areas of the oral cavity.
- In addition, a mouth mirror also enables a better ergonomic position for the operator, thereby preventing occupation-related musculoskeletal injuries.

Challenges with mouth mirrors

Problems	Recommendations
Fogging	Use defogging sprays
	Warming the mirror
	Using a rubber dam
Droplet retention	Cleaning with surfactant solution
	Wetting the mirror surface
Scratches	Use of disposable mouth mirrors
	Separate packing while autoclaving
	Use of mirror cover
Semi-critical item	Autoclave or dispose to avoid cross-contamination
Image distortion	Avoid using rear reflecting or convex mirrors
Reduced image brightness	Use of mirrors with a high-quality reflective surface
Operator hand fatigue	Appropriate finger rests
	Ergonomically designed handle. For example, a thicker handle made of a lightweight material such as silicone
Patient discomfort	Gentle retraction of soft tissues
	Avoid resting the head of the mirror on the alveolar surface

Questions?