
بسم الله الرحمن الرحيم

DENTURE FRACTURE & REPAIRS.

Prof. Dr. Mohammed Alkhafagy

Contains…….

- ***Type of fracture either:***
- By ***Impact***
- By ***Fatigue***
- ***Fatigue Fractures: may be related to,***

1) ***Stress concentrators due to design***
2) ***Stress factors due to patients' behavior***
3) ***Factors introduced in the laboratory***
4) ***Stress factors due to the oral anatomy of the patient***
5) ***Stress due to previous repairs***

- ***Repair technical procedure***
- ***Replacing a fractured tooth/teeth***

TECHNICALLY

Dentures can fracture in one of two ways:

By IMPACT where one hard blow results in instant breakage

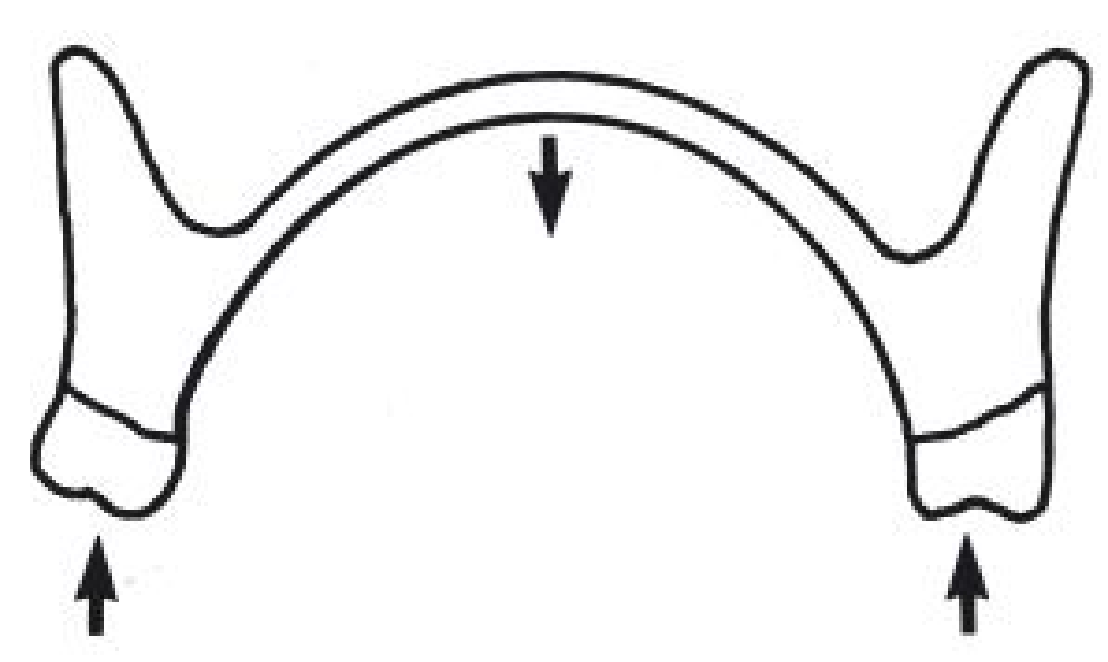
By FATIGUE when the denture base is subjected to repeated stresses.

IMPACT FRACTURE

An impact fracture is usually caused by patient *carelessness or accident.*

FATIGUE

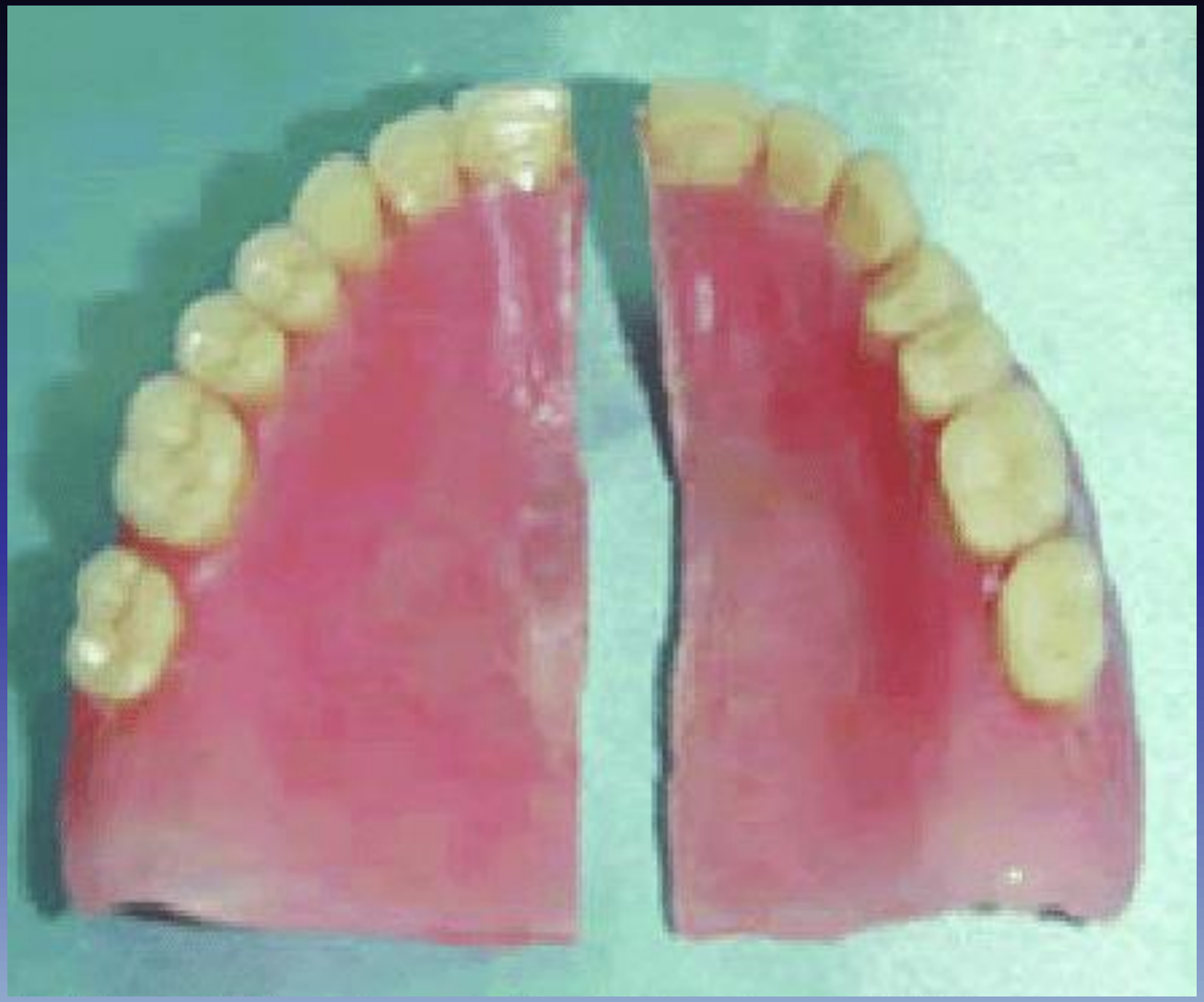
Fatigue fracture: is the result of repetitive cyclic short-time stress or tensile stress, or deformation well below the tensile or flexural strength of the material occurs.



This is the commonest cause of a *midline fracture of a complete upper denture.*

A very tiny crack forms at the point of concentrated stress.

It grows slowly at first, and then the rate of growth increases greatly just before the fracture occurs.



FATIGUE FRACTURES

Fatigue Fractures: may be related to,

1) ***Stress concentrators due to design:***
2) ***Stress factors due to patients' behavior:***
3) ***Factors introduced in the laboratory:***
4) ***Stress factors due to the oral anatomy of the patient:***
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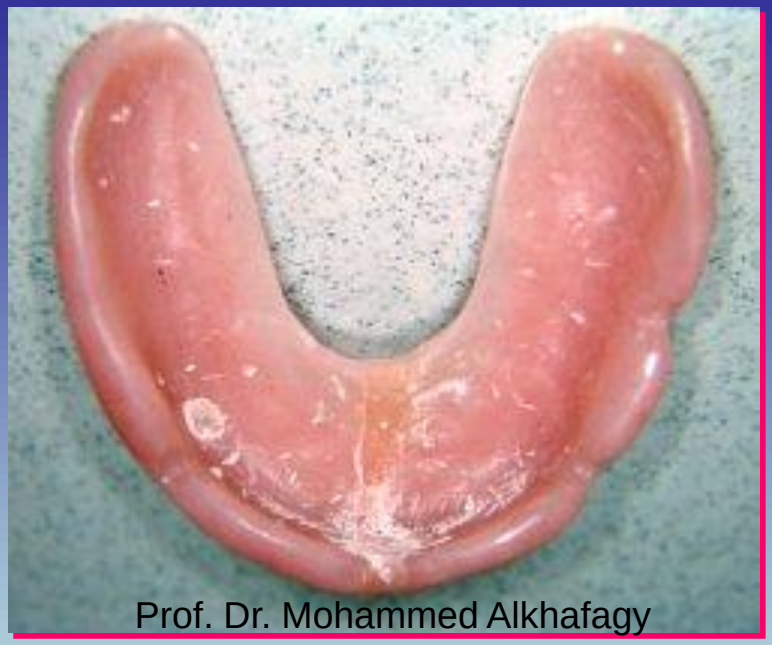
STRESS CONCENTRATORS DUE TO DESIGN.

A "U" shaped denture designed for patients who are unable to wear a full coverage upper complete denture because it makes them feel sick.



STRESS CONCENTRATORS DUE TO DESIGN.

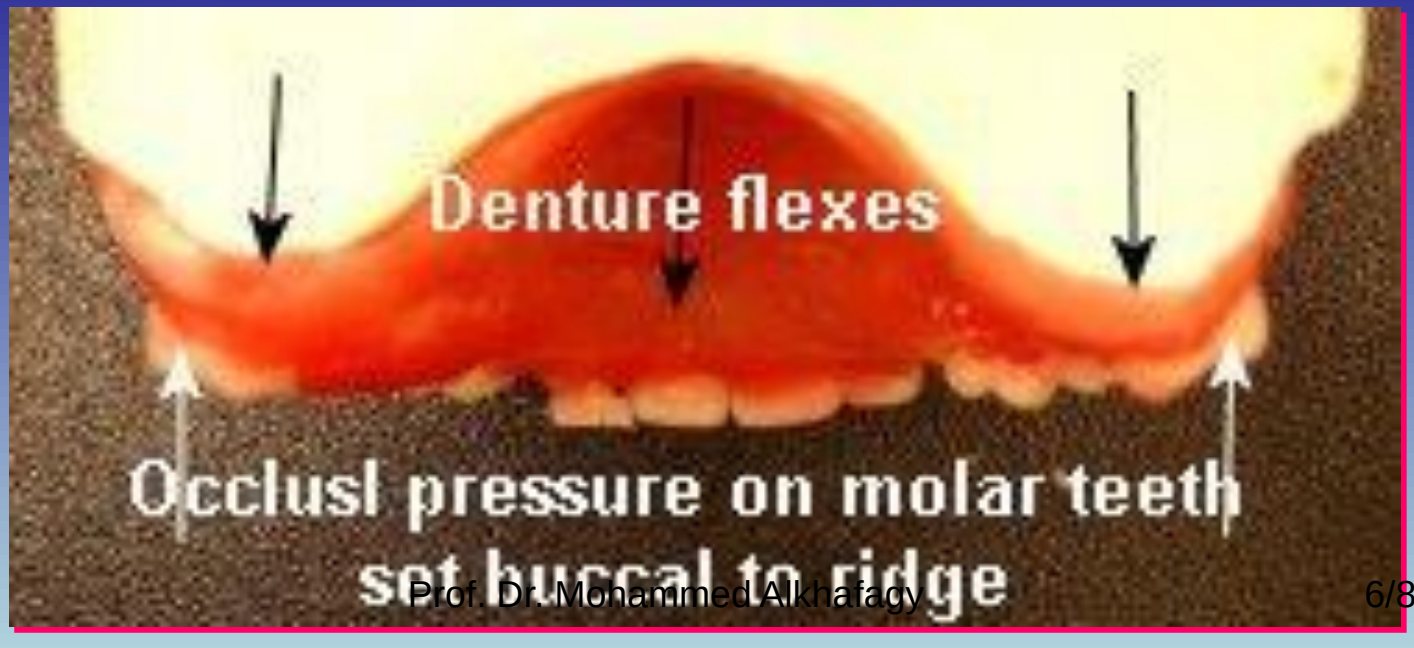
Non-flanged or “open-faced” denture

STRESS CONCENTRATORS DUE TO DESIGN.

- If the patient has abnormally large frena, deep notches in the flanges will be required to accommodate them, resulting in the creation of potential stress concentrators.
- A large diastema between the anterior teeth.

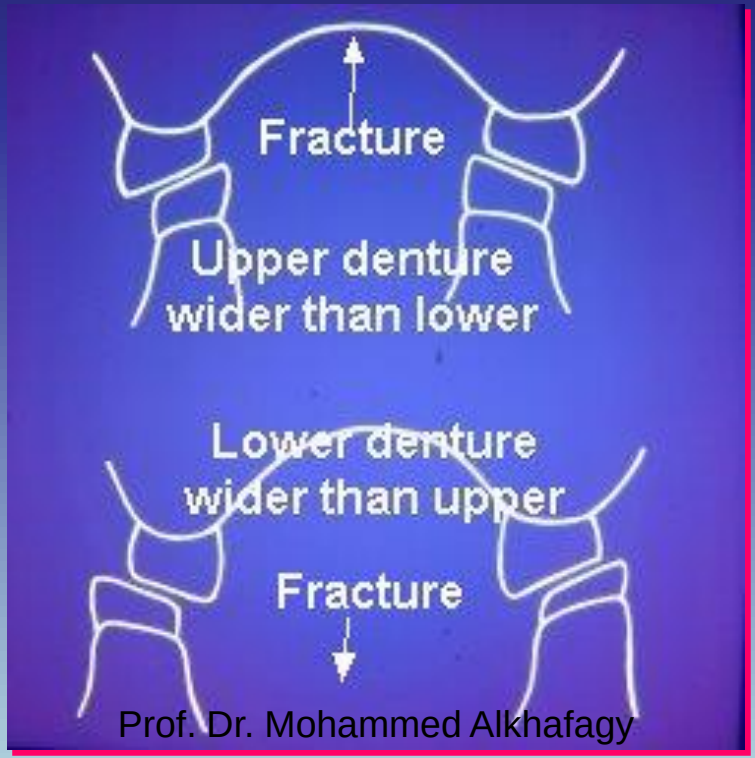
STRESS CONCENTRATORS DUE TO DESIGN.

Flexing around the midline may result if the posterior teeth of an upper denture are placed *too far buccally* in relation to the crest of the ridge.



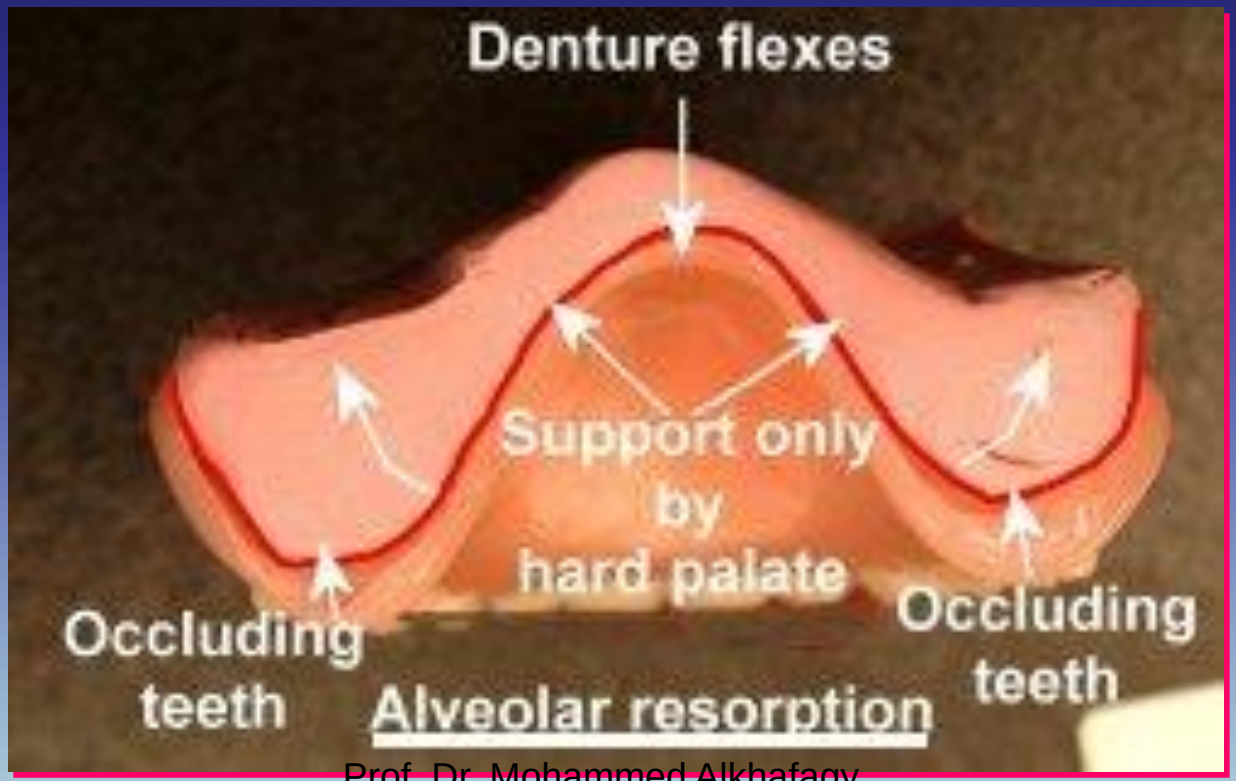
STRESS CONCENTRATORS DUE TO DESIGN.

When the posterior teeth are made of acrylic resin, in time, they may wear to such an extent that they become *wedge-shaped*, creating a wedge-effect on the dentures.

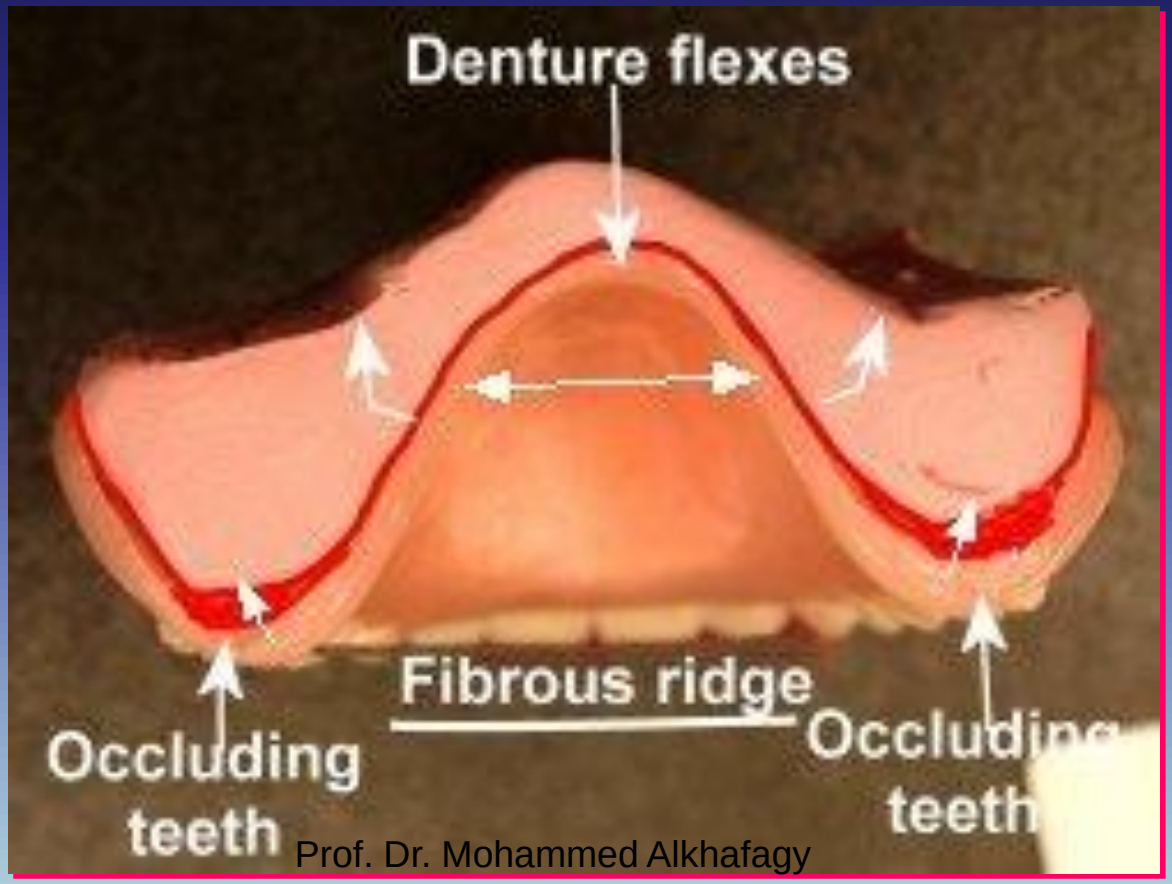


When there has been ***resorption*** of the alveolar bone under an upper denture, support will be provided by the palatal bones.

When the teeth occlude the denture will flex.



When the mucosa over the alveolar ridge becomes fibrous *(flabby)*; flexing will occur each time the teeth occlude.



2) STRESS FACTORS DUE TO PATIENTS BEHAVIOUR

As a result of prolonged use of **abrasive cleaners** over many years acrylic resin will wear very thin and therefore become very prone to fatigue.

2) STRESS FACTORS DUE TO PATIENTS BEHAVIOUR

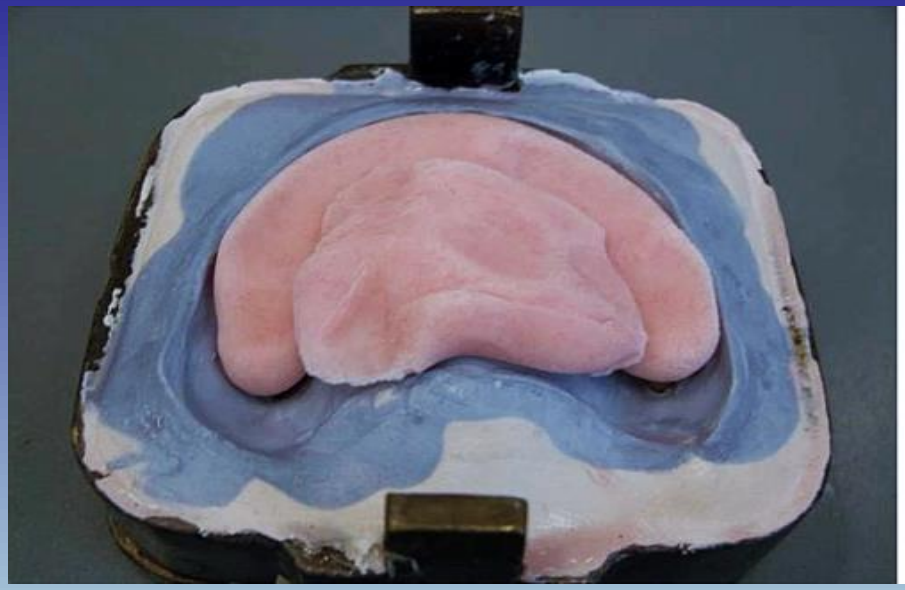
This denture has become bleached and very thin with long-term cleaning and wear.

3) Factors introduced in the laboratory:

- A) The wax base of the trial denture too thin.
- B) During the packing of the acrylic into the processing flask:

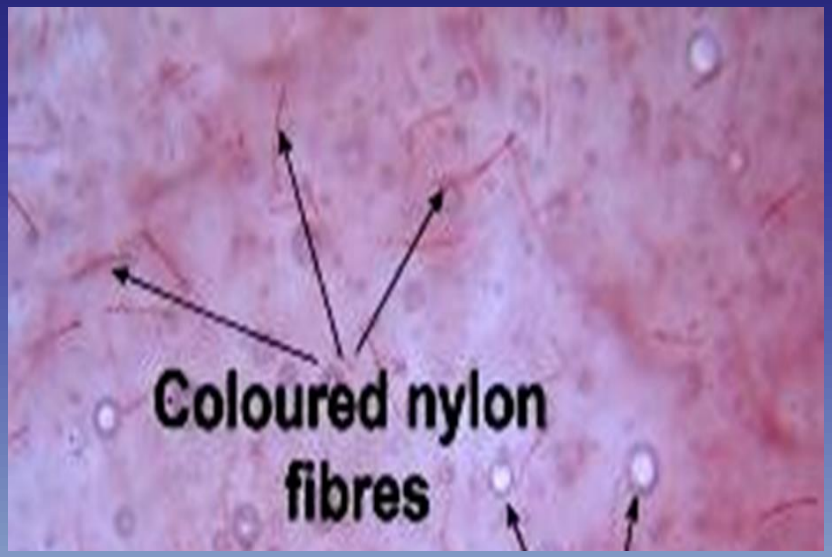
B) During the packing of the acrylic into the processing flask:

1. Introduction of voids into the material by careless packing.
2. Contamination by dust or plaster fragments.



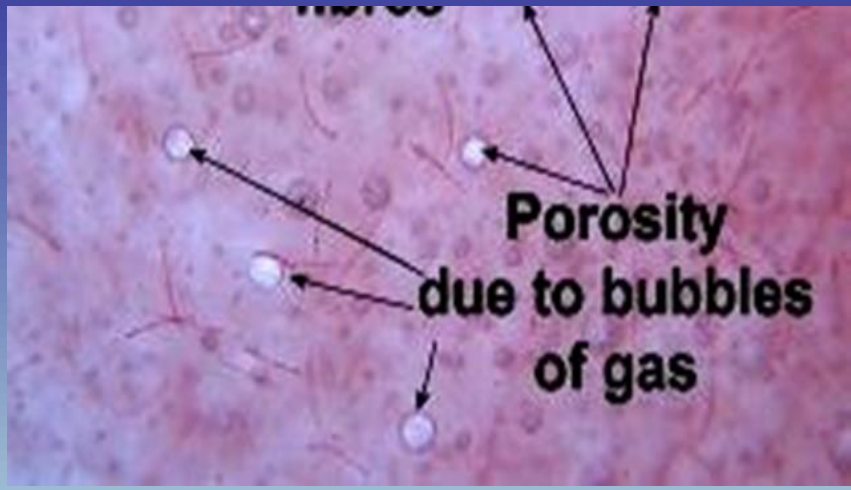
B) During the packing of the acrylic into the processing flask:

3. To give character to the pink acrylic gum work, colored nylon fibers are included in the polymer. If the container housing the polymer is not well shaken before pouring, the fibers can become concentrated in small areas and become stress concentrators.



B) During the packing of the acrylic into the processing flask:

4. Porosity due to the production of bubbles of gas when the correct processing procedures are ignored.



B) During the packing of the acrylic into the processing flask:

5. Incomplete polymerization, occurs when the correct curing-cycle is ignored and can result in the strength of the denture base being reduced.

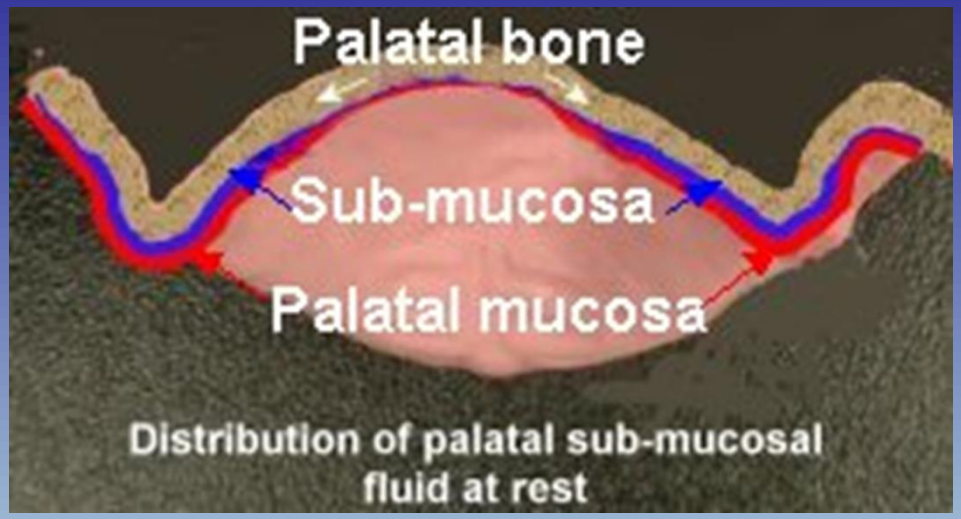
6. Over polishing of the finished denture by the technician can result in a thin denture base.

4) STRESS FACTORS DUE TO THE ORAL ANATOMY OF THE PATIENT

- Under "stress factors due to denture design" the need for deep frenal notches and gum-fitted dentures was discussed.
- The patient may have one of a number of anatomical features which predispose to the flexing of the denture during use.
- The denture -supporting bone of a normal palate is covered by soft tissue consisting of mucosa and sub mucosa of varying thickness and compressibility.

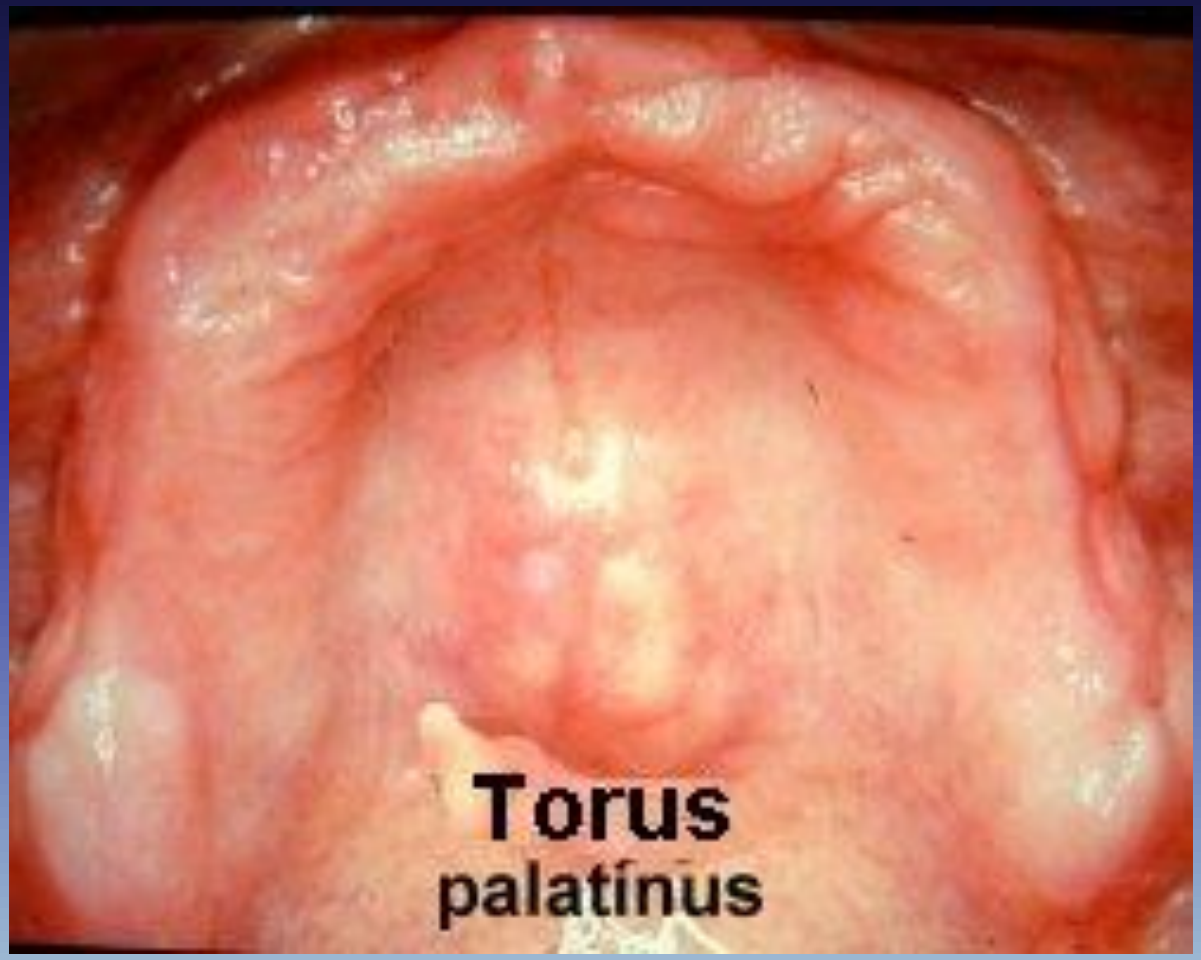
4) STRESS FACTORS DUE TO THE ORAL ANATOMY OF THE PATIENT

- The sub mucosa consists of tissue-fluids, blood, lymph and fat tissue. At the midline (median palatine raphe) and about half a centimeter either side, the mucosa is attached directly to the periosteum with very little or no intervening sub mucosa. In this area the tissues are incompressible.

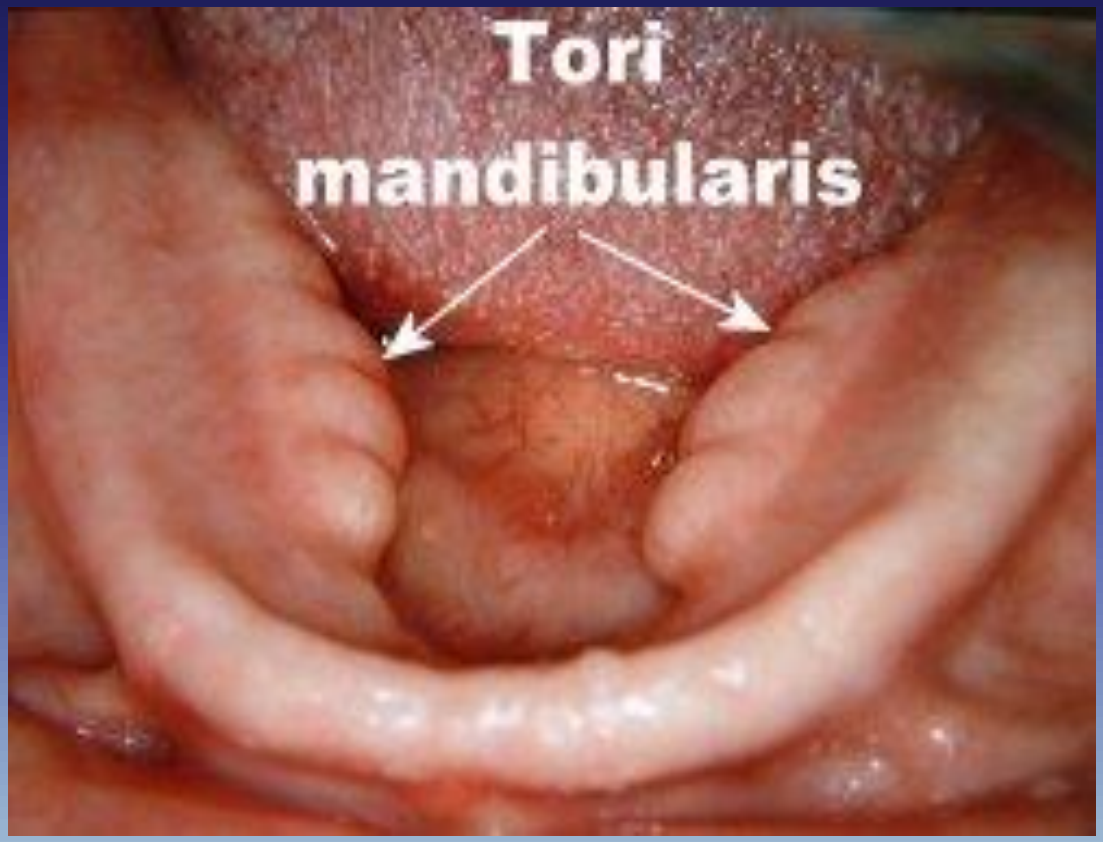


An upper denture with a high vaulted palate is more prone to fracture than a normal or flat palate.

If there is a **Torus Palatinus** present it can mean that the denture base must be very much thinner than normal at the midline.



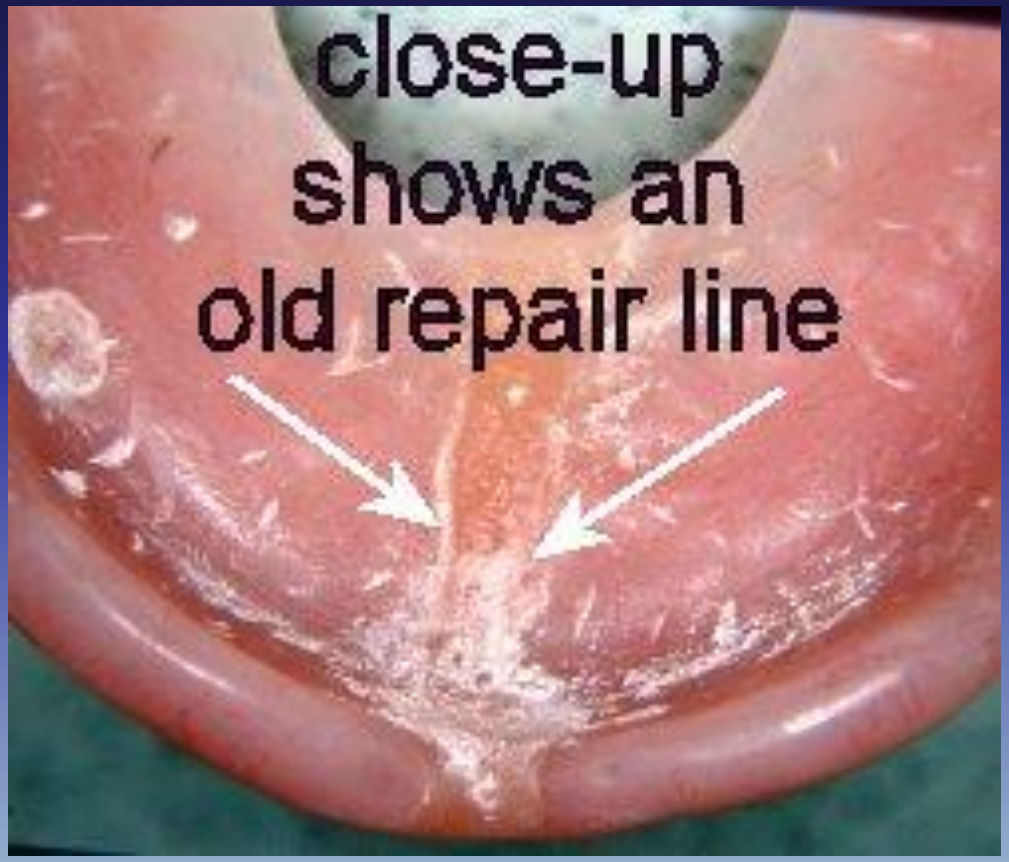
If there is a **Torus Mandibularis** in the lower denture, may have to be modified to such an extent that, unless the acrylic resin denture is modified with a metal insert, fracture is inevitable.



Some patients have a particularly well developed oral musculature and generate abnormally high masticatory forces; this is often referred to as a ***heavy bite*.**

Some patients have a clenching or grinding habit; they are referred to as ***Bruxists*.**

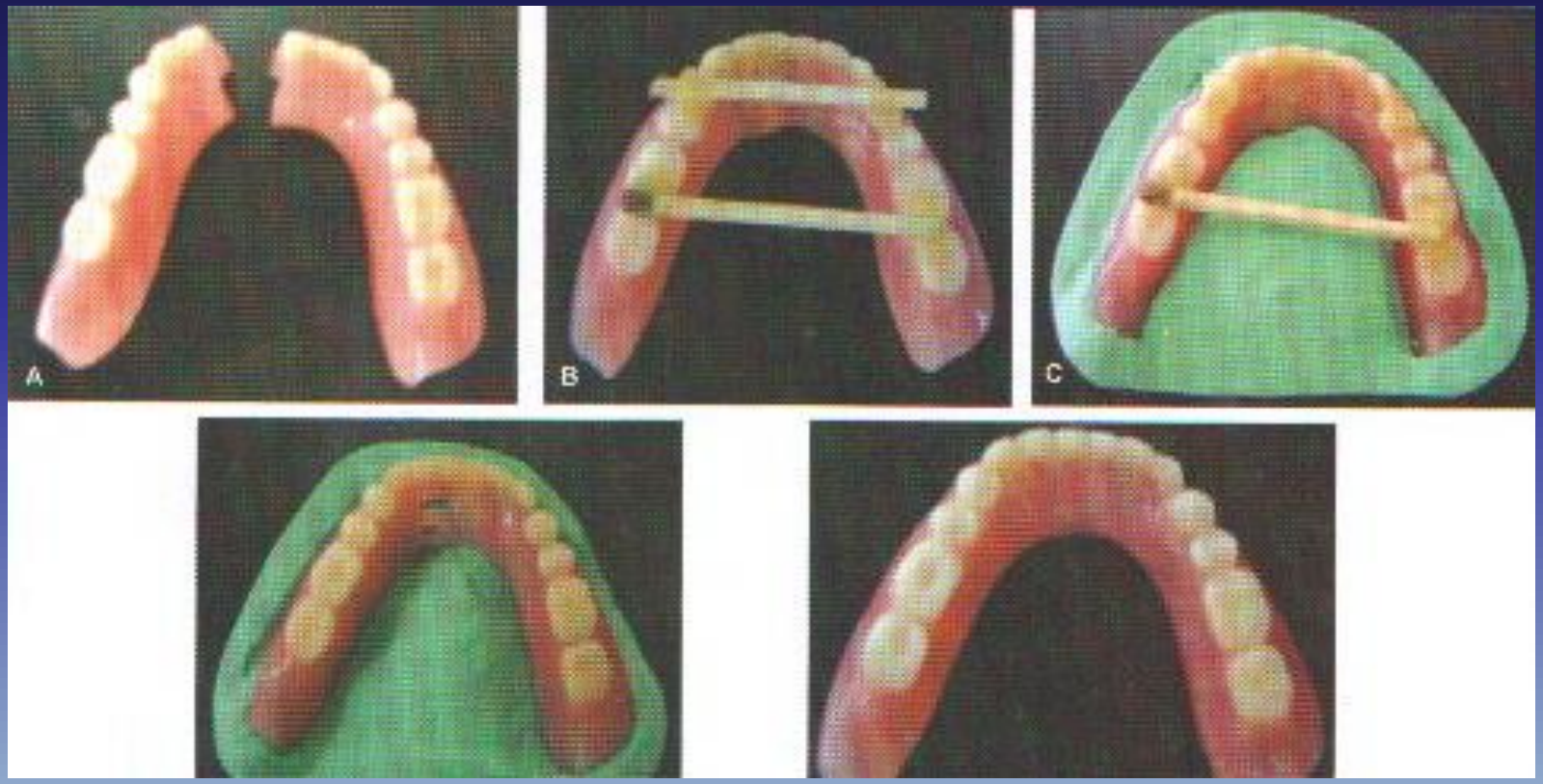
5) STRESS DUE TO PREVIOUS REPAIRS



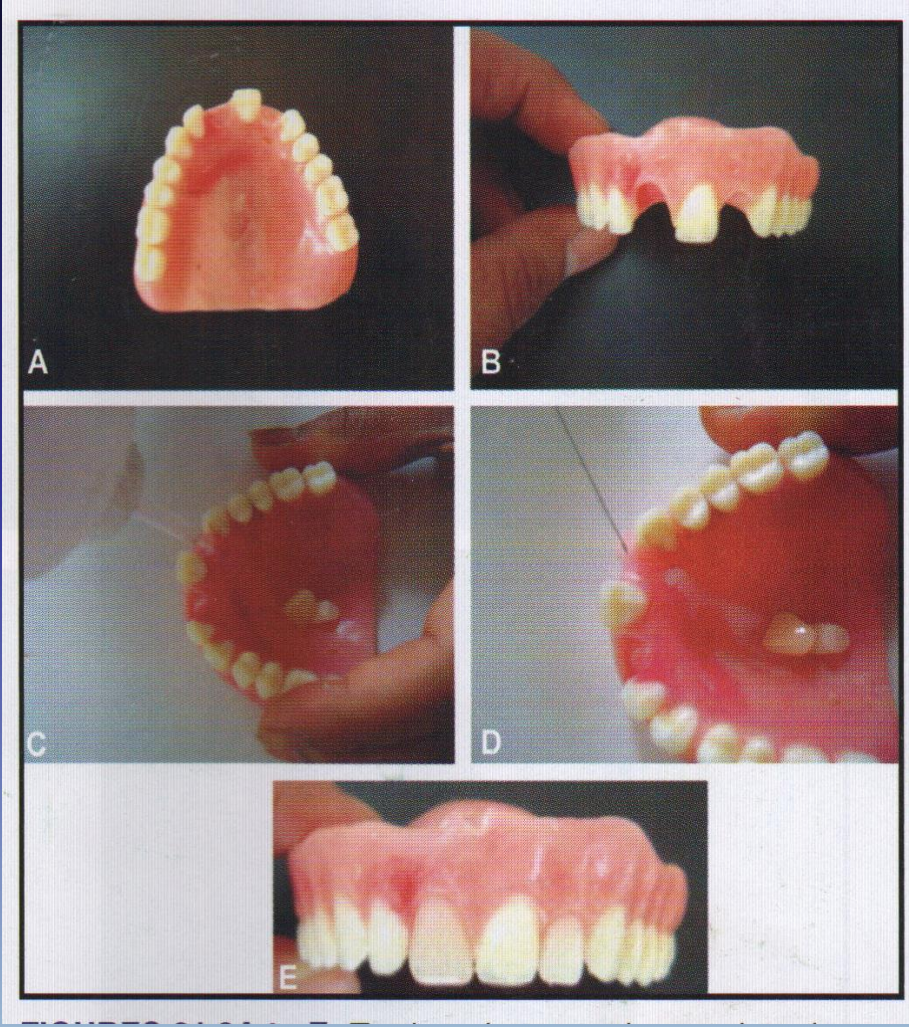
- Before any repair procedure, we should understand the underlining cuasetive factor to prevent future fracture

The current accepted method of strengthening is the use of ***cobalt chromium alloys***

Technical procedure:



Replacing a Fractured AcrylicTeeth



THANK YOU