

**Fig. 3.47:** Age changes in pubic symphysis. Note the prominent ridges and grooves in stage 0 and how they gradually disappear due to wear and tear. The three components are shown in the figure in top row.

added a 3<sup>rd</sup> component (iii) the “**symphyseal rim.**” Six developmental stages [from 0-5] were recognized for each of the 3 components [Fig 3.47]. Developmental stage for each component is calculated and added. The resultant score gives the age of the specimen. *This system, like that of Todd, was derived from an all-male sample.* (8) **Drawbacks of McKern and Stewart’s 3-component system:** (i) The components do not vary independently (ii) The system is unduly complex. (9) Because of these drawbacks, in 1986, **Darryl Katz** and **Judy Suchey** modified the Brooks’ 1955 system. This is now widely known as **Suchey–Brooks (SB) system**, and is *currently the most widely accepted system*, although even this system continues to evolve and is yet to reach its final form. Like McKern and Stewart, they also suggested 6 phases, but with some differences. Significantly they made **casts of SP** [of all phases] which could be compared with the unknown sample. *This method was obviously better than comparison with photographs.* The casts made by **Diane France**, consist of a set of 12 models – 2 from each of the 6 phases; one illustrating an early pattern and one showing a later pattern. (10) **Changes [McKern and Stewart’s method]** – Changes are complex and must be attempted by an expert only. Broadly they are: (i) **20 y** – Symphyseal surface is markedly irregular and uneven. Ridges run transversely across the articular surface (ii) **20–40 y** – (a) Ridges gradually disappear (b) Surface has a granular appearance (c) Ventral and dorsal margins form (iii) **40–45 y** – symphyseal surface has an oval smooth surface, with raised upper and lower ends (iv) **45–50 y** – A narrow beaded rim develops on the margins (v) **51–60 y** – (a) Symphyseal surface erodes (b) breakdown of ventral margin begins (vi) **61–70 y** – Surface is irregularly eroded. (11) **Criticisms of the SP method** – (i) Gives very large age ranges which are not useful for forensic purposes (ii) After 40 y the technique loses precision. All methods [Todd, McKern and Stewart, Suchey–Brooks] suffer from this problem. (iii) Symphyseal changes are dependent on a variety of environmental and genetic factors that are poorly understood, leading to wide variations. (iv) Highly subjective, with wide interobserver variability.

#### (h) Auricular surface

(1) **More difficult** - Age changes in the auricular surface [Fig 3.48] are *more difficult to interpret* than those in symphysis pubis [SP] because: (i) there is no definitive “**delayed epiphysis**” stage as is found in the SP [the “**ventral rampart**”] (ii) age changes are more complex. (2) **Advantages**

**over SP** – Yet there are advantages, because (i) this region of hip bone survives better in old bones (ii) interpretable changes in the auricular surface extend well beyond the age of 50 [while they generally do not in the SP] (iii) Accuracy of age estimation is same as that of SP.

#### (i) Miscellaneous methods

(1) **Bony lipping** (2) **Calcification of laryngeal and other cartilages** (3) **Cortical resorption:** (i) *In infancy* – resorptive activity is found in the inner 1/3<sup>rd</sup> of cortex; (ii) in childhood, throughout the thickness; (iii) during adolescence – marked in the outer 1/3<sup>rd</sup> [most obvious just underneath the periosteal surface] (iv) Young adulthood – very little resorption (v) >50y in women and >60y in men – inner 1/3<sup>rd</sup> of cortex undergoes ↑ing resorption, with thinning of cortex (4) **Length of long bones** (5) **Osteoarthritic changes** (6) **Osteophytes** (7) **Osteoporosis** (8) With advancing age, red marrow is gradually replaced by fatty tissue. (9) **Fetal age** – Note length of ossified portions of long bones. Longer lengths indicate greater age (10) **If bones are broken**– Note external diameter at mid-shaft to get a rough idea of age. Older individuals have greater diameters.

### 3. ML importance of age

#### Memory Aid 13

**CIRCLÉ MIKE JIM** [MERE MCI KI JAI - is another useful mnemonic, where ‘A’ becomes ‘Abortion’]

C-CRIMINAL RESPONSIBILITY, CONSENT

I-INFANTICIDE

R-RAPE

C-CRIMINAL ABORTION

L – [dummy letter]

E-EMPLOYMENT

M-MAJORITY

I-IMPOTENCE AND STERILITY

K-KIDNAPPING

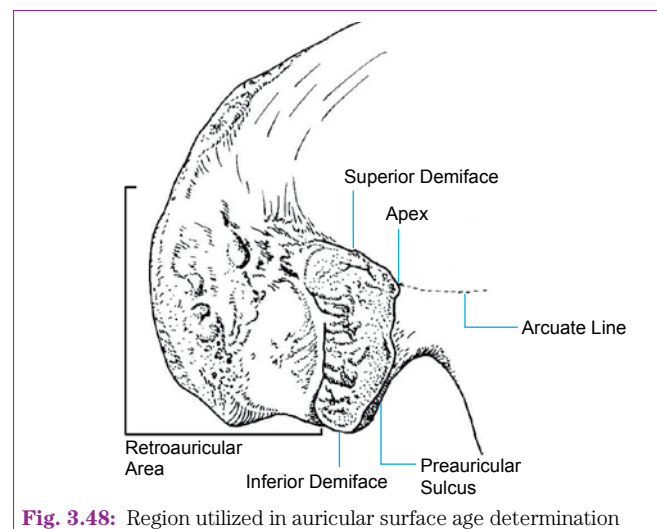
E-EVIDENCE

J-JUDICIAL PUNISHMENT

I-IDENTIFICATION

M-MARRIAGE CONTRACT

(1) **Criminal Responsibility:** (i) **7 y** - Any act which is done by a child under 7 years of age is not an offence [S.82, IPC]. This is because such a child does not have *mens rea* [ch 28]. **Corollary** - *A male child <7 y cannot be accused of rape [ch 25].* (ii) **7-12 y** - A child >7 y of age is presumed to have “*attained sufficient maturity of understanding to judge the nature and consequences of his conduct*”. However if a child between 7 and 12 years can show that he did not attain such understanding, his action would not be considered an offence [S.83, IPC]. (iii) **12-18 y** – A child between 12 and



**Fig. 3.48:** Region utilized in auricular surface age determination