

# 中国人颅骨缝的变化与年龄关系

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**关键词** 颅骨缝愈合度;年龄估计;中国人

## 内 容 提 要

本文以在广西收集的有生前年龄记录的中国人139例15—84岁男性颅骨为研究材料,依据 Broca 氏颅缝愈合的0—4度分级标准,分13个年龄组,分别对矢状缝、冠状缝、人字缝、蝶额缝、蝶顶缝、蝶鳞缝、枕乳突缝、顶乳突缝、鳞缝等九个颅骨内外板缝进行研究,分析每个颅骨缝各愈合度的百分率和颅骨缝的变化与年龄关系,并与欧洲人和日本人作对比,显示出人种、民族和个体的一些差异。

人类学、法医学和考古学工作者常以颅骨缝愈合度、牙齿咬合面磨耗度、颅骨壁面的情况、颌骨的重量和颅盖骨各种测量数据的比较作为推断年龄的根据(小片重男,1961)。国外一些学者对颅骨缝愈合与年龄关系作过研究,在有关资料论述中,一般认为随着年龄的增长,颅缝的愈合度也随之增加,但颅骨缝的愈合开始时期及各愈合度的进行情况,也存在人种及个体差异。Bolk (1915)对荷兰人颅骨缝的研究,认为颅骨缝的完全愈合通常不一定取决于年龄的增长。Todd 和 Lyon (1924、1925)对欧洲白人颅骨缝的研究认为内板缝的愈合比外板缝的愈合早十年,而且内板缝的愈合比外板缝更有规律性。小片重男(1961)对日本人颅骨缝的研究认为日本人颅骨缝开始愈合的部位和顺序与白人的颅缝有些差异,显示出人种和个体之差异。

据查有关资料,我国仍未有人对国人颅骨内外板缝作系统研究的报道,而在有关著作中引用的是外国人的资料。因此,我们以中国人颅骨为研究材料,进行颅骨缝的变化与年龄关系的研究,以提供这方面的研究资料。

## 一、材料与方 法

本文研究的材料是从广西各地收集的有明确生前年龄记录的男性完整颅骨139例,经充分洗刷干净,干燥后按 Broca 氏的分度标准,分13个年龄组,分别对矢状缝(分前凶段、顶段、顶孔段和后段进行观察)、冠状缝(分前凶段及左右段观察)、人字缝(分人字段及左右段观察)、蝶额缝(分左右观察)、蝶顶缝(分左右观察)、蝶鳞缝(分左右观察)、枕乳突缝(分左右观察)、顶乳突缝(分左右观察)、鳞缝(分左右观察)研究。

上述各缝以各年龄组按 Broca 氏 0—4 度颅缝愈合的平均愈合度进行统计分析的,因不同年龄组各缝的不同部位(段)出现的愈合度不一样,即使是在同一个颅骨,各缝的不同部位(段)出现的愈合度有时也不是同一个等级的,但其等级差别不大。所以在观察时分段记录各愈合度,然后算出各缝的平均愈合度,在此基础上按年龄组再统计出颅缝各愈合度的百分率。每缝平均愈合度的计算,是以各段愈合级(度)数之和除以段数,所得之值为其平均愈合度。因颅缝标准愈合度是整数,小数后之值则四舍五入。例如其颅骨冠状缝左段、前凶段和右段皆为 0 级,其平均愈合度则为 0 级,若左段为 1 级其他两段为 0 级,平均愈合度为 0.33 级,四舍五入后其平均愈合度则为 0 级,若左段为 3 级,其余两段为 4 级,其平均愈合度为 3.66 级,四舍五入后其平均愈合度为 4 级。139 例颅骨各缝均按此法算出其平均愈合度。我们认为所得的平均愈合度是合乎实际的也是合理的。在应用颅骨缝愈合度估计年龄时,先算出平均愈合度后估计年龄。

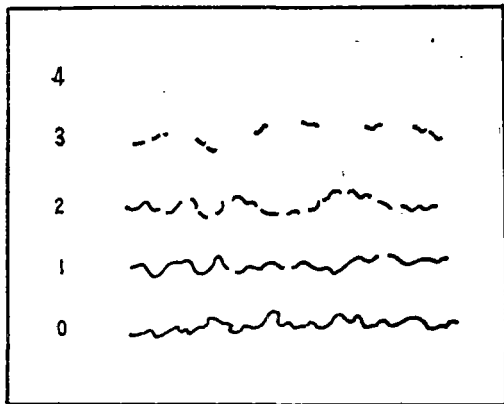


图 1 Broca 氏 0—4 度颅骨缝愈合度  
The fusing degree 0—4 of the Broca at skull suture

0 度: 没有愈合; 1 度: 开始愈合; 2 度: 部分愈合;  
3 度: 大部分愈合; 4 度: 完全愈合

本文对额中缝的出现率进行了统计。

## 二、结 果

1. 颅骨外板各骨缝愈合度百分率与年龄分布(见表 1)
2. 颅骨内板各骨缝愈合度百分率与年龄分布(见表 2)
3. 额中缝的出现率

在 139 例颅骨中,出现额中缝 11 例,占 7.9%。

## 三、结 论

1. 主要颅骨缝开始愈合的年龄、顺序和 1 度愈合出现较多的缝:

颅骨外、内板的矢状缝、冠状缝和人字缝的开始愈合年龄分别为 20—24 岁和 25—29 岁,这与欧洲人相接近,但稍晚于日本人。颅骨外、内板缝开始愈合最早的是蝶额缝,而日本人和欧洲人为矢状缝。开始愈合最晚的是鳞缝,而日本和欧洲人为鳞缝和顶乳突缝。颅骨外板缝 1 度愈合出现较多的缝是冠状缝右侧段,有 28 例,占 20%;内板缝为矢状缝的顶孔段,有 18 例,占 13%。

2. 颅骨外、内板缝 4 度愈合与年龄关系:

表 1 颅骨外板各骨缝愈合度百分率与年龄分布

| 骨缝   | 愈合度 | 年龄分布  |       |       |       |       |       |       |       |       |       |       |       |       |  |
|------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--|
|      |     | 15—19 | 20—24 | 25—29 | 30—34 | 35—39 | 40—44 | 45—49 | 50—54 | 55—59 | 60—64 | 65—69 | 70—74 | 75—84 |  |
| 矢状缝  | 0   | 100   | 83.3  | 50    | 64.3  | 27.3  | 25    | 12.5  | 22.2  |       |       |       |       |       |  |
|      | 1   |       | 16.7  | 20    | 7.2   | 18.2  | 31.3  | 37.5  | 22.2  | 10    | 30.8  | 25    |       |       |  |
|      | 2   |       |       | 30    | 14.3  | 36.4  | 12.5  | 25    | 22.2  | 40    | 30.8  | 37.5  | 50    | 16.7  |  |
|      | 3   |       |       |       | 14.3  | 9.0   | 25    | 12.5  | 22.2  | 40    | 30.8  | 12.5  | 16.7  | 16.7  |  |
|      | 4   |       |       |       |       | 9.1   | 6.3   | 12.5  | 11.1  | 10    | 7.6   | 25    | 33.3  | 66.6  |  |
| 冠状缝  | 0   | 100   | 50    | 30    | 7.1   | 9.1   | 6.3   |       | 10    | 10    |       |       |       |       |  |
|      | 1   |       | 50    | 45    | 42.9  | 18.2  | 18.7  | 37.5  | 10    | 10    |       |       |       |       |  |
|      | 2   |       |       | 15    | 28.6  | 45.5  | 37.5  | 25    | 50    | 10    | 38.4  | 62.5  | 16.7  | 16.7  |  |
|      | 3   |       |       | 10    | 21.4  | 27.3  | 37.5  | 25    | 20    | 50    | 38.5  | 25    | 50    | 33.3  |  |
|      | 4   |       |       |       |       |       |       | 12.5  | 10    | 20    | 23.1  | 12.5  | 33.3  | 50    |  |
| 人字缝  | 0   | 100   | 100   | 50    | 57.2  | 18.2  | 31.3  | 12.5  | 20    | 10    | 7.7   |       | 16.7  |       |  |
|      | 1   |       |       | 30    | 7.1   | 27.3  | 6.3   | 25    | 30    | 20    | 23.1  |       |       |       |  |
|      | 2   |       |       | 20    | 21.4  | 27.3  | 43.7  | 25    | 20    | 10    | 30.8  | 62.5  | 33.3  | 33.3  |  |
|      | 3   |       |       |       | 14.3  | 27.3  | 12.5  | 25    | 20    | 40    | 30.8  | 25    | 33.3  | 50    |  |
|      | 4   |       |       |       |       |       | 6.3   | 12.5  | 10    | 20    | 7.7   | 12.5  | 16.7  | 16.7  |  |
| 蝶额缝  | 0   | 75    | 83.3  | 55    | 50    | 54.5  | 31.3  | 12.5  | 20    | 20    | 15.4  | 12.5  |       |       |  |
|      | 1   | 25    | 16.7  | 40    | 21.4  | 18.2  | 2.5   | 25    | 10    | 20    | 15.4  | 12.5  |       |       |  |
|      | 2   |       |       | 5     | 7.2   | 9.1   | 12.5  | 25    | 10    | 20    | 7.7   | 12.5  | 16.7  |       |  |
|      | 3   |       |       |       | 21.4  | 18.2  | 31.3  | 37.5  | 20    | 20    | 23.1  | 2.5   | 33.3  | 50    |  |
|      | 4   |       |       |       |       |       |       |       | 40    | 20    | 38.4  | 37.5  | 50    | 50    |  |
| 蝶顶缝  | 0   | 100   | 100   | 70    | 71.4  | 63.6  | 50    | 25    | 30    | 40    | 38.5  | 25    |       |       |  |
|      | 1   |       |       | 30    | 7.1   | 9.1   | 18.8  | 12.5  | 10    | 20    | 15.4  | 12.5  |       |       |  |
|      | 2   |       |       |       | 21.4  | 9.1   | 6.3   | 25    | 10    | 20    | 7.7   | 12.5  | 16.7  | 16.7  |  |
|      | 3   |       |       |       |       | 18.2  | 25    | 37.5  | 10    | 10    | 7.7   | 12.5  | 16.7  | 33.3  |  |
|      | 4   |       |       |       |       |       |       |       | 40    | 10    | 30.7  | 37.5  | 66.6  | 50    |  |
| 蝶鳞缝  | 0   | 100   | 100   | 85    | 92.9  | 90.9  | 93.8  | 75    | 50    | 40    | 61.5  | 62.5  | 50    | 33.3  |  |
|      | 1   |       |       | 15    | 7.1   | 9.1   | 6.2   | 12.5  | 30    | 30    | 15.4  | 25    |       | 16.7  |  |
|      | 2   |       |       |       |       |       |       | 12.5  | 10    | 20    | 7.7   | 12.5  | 16.7  | 33.3  |  |
|      | 3   |       |       |       |       |       |       |       | 10    | 10    | 7.7   |       | 33.3  | 16.7  |  |
|      | 4   |       |       |       |       |       |       |       |       |       | 7.7   |       |       |       |  |
| 枕乳突缝 | 0   | 100   | 100   | 70    | 71.4  | 54.5  | 62.5  | 37.5  | 70    | 60    | 30.8  | 37.5  | 33.3  | 50    |  |
|      | 1   |       |       | 30    | 7.1   | 18.2  | 12.5  | 25    | 10    |       | 15.4  |       | 16.7  |       |  |
|      | 2   |       |       |       | 7.1   | 9.1   | 6.3   | 12.5  | 10    | 10    | 7.7   | 25    | 16.7  | 16.7  |  |
|      | 3   |       |       |       | 14.3  | 18.2  | 18.7  | 25    | 10    | 30    | 23.1  | 25    | 16.7  | 33.3  |  |
|      | 4   |       |       |       |       |       |       |       |       |       | 23    | 12.5  | 16.6  |       |  |
| 顶乳突缝 | 0   | 100   | 100   | 100   | 100   | 72.7  | 87.5  | 87.5  | 90    | 90    | 84.6  | 75    | 83.4  | 83.4  |  |
|      | 1   |       |       |       |       | 27.3  | 12.5  |       | 10    |       | 7.7   | 12.5  | 16.6  |       |  |
|      | 2   |       |       |       |       |       |       |       |       | 10    | 7.7   | 12.5  |       | 16.6  |  |
|      | 3   |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
|      | 4   |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| 鳞缝   | 0   | 100   | 100   | 100   | 100   | 81.8  | 93.8  | 93.8  | 90    | 90    | 76.9  | 87.5  | 50    | 50    |  |
|      | 1   |       |       |       |       | 18.2  | 6.2   | 6.2   | 10    | 10    | 7.7   | 12.5  | 16.7  | 16.7  |  |
|      | 2   |       |       |       |       |       |       |       |       |       | 15.4  |       | 16.6  | 16.6  |  |
|      | 3   |       |       |       |       |       |       |       |       |       |       |       | 16.7  | 16.7  |  |
|      | 4   |       |       |       |       |       |       |       |       |       |       |       |       |       |  |
| 例数   |     | 4     | 12    | 20    | 14    | 11    | 16    | 8     | 10    | 10    | 13    | 8     | 6     | 6     |  |

表2 颅骨内板各骨缝愈合度百分率与年龄分布

| 骨缝   | 愈合度 | 年龄分布  |       |       |       |       |       |       |       |       |       |       |       |       |
|------|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
|      |     | 15-19 | 20-24 | 25-29 | 30-34 | 35-39 | 40-44 | 45-49 | 50-54 | 55-59 | 60-64 | 65-69 | 70-74 | 75-84 |
| 矢状缝  | 0   | 100   | 91.7  | 52.4  | 50    | 27.3  | 13.3  |       |       |       |       |       |       |       |
|      | 1   |       | 8.3   | 19.1  | 21.4  | 36.4  | 6.7   | 50    | 10    |       |       |       |       |       |
|      | 2   |       |       | 19.1  | 14.3  | 18.2  | 26.7  | 12.5  | 30    | 10    | 15.4  | 12.5  |       |       |
|      | 3   |       |       | 9.5   | 14.3  | 18.1  | 26.7  | 25    | 40    | 30    | 38.5  | 12.5  | 33.3  | 28.6  |
|      | 4   |       |       |       |       |       | 26.6  | 12.5  | 20    | 60    | 46.1  | 75    | 66.7  | 71.4  |
| 冠状缝  | 0   | 100   | 50    | 28.6  | 28.6  | 9.1   | 6.7   |       |       |       |       |       |       |       |
|      | 1   |       | 50    | 14.3  | 21.4  | 9.1   | 6.7   | 12.5  |       |       |       |       |       |       |
|      | 2   |       |       | 28.6  | 14.3  | 9.1   | 6.7   | 12.5  |       |       |       |       |       |       |
|      | 3   |       |       | 28.5  | 35.7  | 45.5  | 20    | 25    | 20    | 10    | 7.7   |       |       |       |
|      | 4   |       |       |       |       | 27.2  | 60    | 50    | 80    | 90    | 92.3  | 100   | 100   | 100   |
| 人字缝  | 0   | 100   | 100   | 57.1  | 50    | 54.5  | 13.3  |       |       |       |       |       |       |       |
|      | 1   |       |       | 19.1  | 14.3  | 9.1   | 33.3  | 25    | 20    | 20    | 7.7   |       |       | 16.7  |
|      | 2   |       |       | 14.3  | 7.2   | 9.1   | 6.7   | 12.5  | 10    | 10    | 7.7   | 12.5  | 16.7  | 16.7  |
|      | 3   |       |       | 9.5   | 28.5  | 27.3  | 26.7  | 50    | 40    | 30    | 46.2  | 12.5  | 16.7  | 16.7  |
|      | 4   |       |       |       |       |       | 20    | 12.5  | 30    | 40    | 38.5  | 75    | 66.7  | 50    |
| 蝶额缝  | 0   | 75    | 91.7  | 52.4  | 50    | 63.6  | 20    |       | 10    | 10    | 15.4  |       |       |       |
|      | 1   | 25    | 8.3   | 14.3  | 7.2   |       | 6.7   | 25    | 20    | 20    | 23.1  |       |       |       |
|      | 2   |       |       | 9.5   | 14.3  |       |       | 12.5  | 10    | 20    | 7.7   |       | 16.7  | 16.7  |
|      | 3   |       |       | 23.8  | 28.5  | 36.4  | 26.7  | 25    | 10    | 10    | 7.7   | 25    | 16.7  | 16.7  |
|      | 4   |       |       |       |       |       | 46.6  | 37.5  | 50    | 40    | 46.1  | 75    | 66.6  | 66.7  |
| 蝶顶缝  | 0   | 100   | 91.7  | 85.7  | 78.6  | 72.7  | 66.7  | 62.5  | 40    | 20    | 46.2  |       | 33.3  | 33.3  |
|      | 1   |       | 8.3   | 4.8   | 14.3  | 9.1   | 6.7   |       | 10    | 10    | 15.4  | 12.5  | 16.7  | 16.7  |
|      | 2   |       |       | 9.5   | 7.1   | 9.1   | 6.6   |       | 10    | 20    | 7.7   | 12.5  |       | 16.7  |
|      | 3   |       |       |       |       | 9.1   | 20    |       | 20    | 20    | 15.4  | 37.5  |       |       |
|      | 4   |       |       |       |       |       |       | 37.5  | 20    | 30    | 15.3  | 37.5  | 50    | 33.3  |
| 蝶鳞缝  | 0   | 100   | 100   | 85.7  | 85.7  | 81.8  | 73.3  | 100   | 80    | 60    | 53.8  | 25    | 66.7  | 42.9  |
|      | 1   |       |       | 14.3  | 7.1   | 9.1   | 6.7   |       | 10    | 30    | 15.4  | 25    | 16.7  | 28.6  |
|      | 2   |       |       |       | 7.1   | 9.1   | 13.3  |       | 10    | 10    | 15.4  | 25    |       | 14.3  |
|      | 3   |       |       |       |       |       | 6.7   |       |       |       | 7.7   | 12.5  |       |       |
|      | 4   |       |       |       |       |       |       |       |       |       | 7.7   | 12.5  | 16.6  | 14.3  |
| 枕乳突缝 | 0   | 100   | 100   | 95.2  | 78.6  | 81.8  | 66.6  | 75    | 80    | 60    | 23.1  | 12.5  | 33.3  | 42.7  |
|      | 1   |       |       | 4.8   | 7.2   |       | 6.7   |       |       | 10    | 7.7   |       |       | 28.6  |
|      | 2   |       |       |       | 7.2   | 9.1   | 6.7   | 12.5  | 10    |       | 38.5  | 25    | 16.7  |       |
|      | 3   |       |       |       | 7.1   | 9.1   | 20    | 12.5  | 10    | 30    | 15.4  | 37.5  | 16.7  |       |
|      | 4   |       |       |       |       |       |       |       |       |       | 15.3  | 25    | 33.3  | 28.7  |
| 顶乳突缝 | 0   | 100   | 100   | 100   | 100   | 90.9  | 86.7  | 87.5  | 90    | 70    | 61.5  | 62.5  | 83.3  | 57.1  |
|      | 1   |       |       |       |       |       | 9.1   | 6.7   |       | 10    | 23.1  |       |       | 14.3  |
|      | 2   |       |       |       |       |       |       | 6.7   |       | 10    | 7.7   | 12.5  |       |       |
|      | 3   |       |       |       |       |       |       |       | 12.5  |       |       | 12.5  |       | 14.3  |
|      | 4   |       |       |       |       |       |       |       |       |       | 7.7   | 12.5  | 16.7  | 14.3  |
| 鳞缝   | 0   | 100   | 100   | 100   | 100   | 81.8  | 93.3  | 87.5  | 90    | 90    | 16.9  | 75    | 83.3  | 71.4  |
|      | 1   |       |       |       |       | 18.2  | 6.7   | 12.5  |       |       |       | 12.5  |       | 14.3  |
|      | 2   |       |       |       |       |       |       |       |       | 10    |       |       |       |       |
|      | 3   |       |       |       |       |       |       |       |       |       | 15.4  | 12.5  | 16.7  |       |
|      | 4   |       |       |       |       |       |       |       |       |       | 7.7   |       |       | 14.3  |
| 例数   |     | 4     | 12    | 21    | 14    | 11    | 15**  | 8     | 10    | 10    | 13    | 8     | 6     | 7*    |

\* 内板人字缝、蝶额缝、蝶顶缝和枕乳突缝均为6例。

\*\* 内板矢状缝为16例。

颅骨外内板缝的 4 度愈合从出现到达高峰, 显示出其愈合度百分率的增加与年龄增长有密切关系, 而内板缝比外板缝更有规律性, 这与 Todd 和 Lyon (1924) 的结果是一致的。

3. 15—19 岁: 颅骨外、内板缝 1 度愈合的有蝶额缝。

4. 20—29 岁之间: 颅骨外板冠状缝 1 度愈合占该组全例的 47% 以上。内板冠状缝 1 度愈合占该组全例的 32% 以上。

5. 30—39 岁之间: 颅骨外板缝 2—4 度愈合的有矢状缝和人字缝; 颅骨内板缝 2—4 度愈合的有冠状缝。

6. 40—49 岁之间: 颅骨外板缝 1—3 度愈合的有蝶额缝、蝶顶缝和枕乳突缝。4 度愈合的有矢状缝、冠状缝和人字缝, 其百分率分别为 10%、6%、9%。颅骨内板缝 1—3 度愈合的有蝶鳞缝、枕乳突缝和顶乳突缝。4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝和蝶顶缝, 其愈合度百分率分别为 19.5%、55%、16%、42%、18.7%。

7. 50—59 岁之间: 颅骨外板缝 1—3 度愈合的有蝶鳞缝和枕乳突缝。4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝和蝶顶缝, 其愈合度百分率分别为 10.5%、15%、15%、30%、25%。颅骨内板冠状缝没有出现 1—2 度愈合; 4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝和蝶顶缝, 其愈合度百分率分别为 40%、85%、35%、45%、25%。

8. 60—69 岁之间: 颅骨外板的冠状缝没有出现 1 度愈合; 4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝、蝶顶缝、蝶鳞缝和枕乳突缝, 其百分率分别为 16%、17.5%、10%、38%、34%、4%、17.5%。颅骨内板矢状缝没有出现 1 度愈合; 冠状缝没有出现 1—2 度愈合; 4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝、蝶顶缝、蝶鳞缝、枕乳突缝和顶乳突缝, 其百分率分别为 60%、96%、56.5%、60.5%、26.5%、10%、20%、10%。

9. 70—84 岁之间: 颅骨外板矢状缝、冠状缝、人字缝、蝶额缝和蝶顶缝没有出现 1 度愈合; 4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝、蝶顶缝和枕乳突缝, 其百分率分别为 50%、41%、17%、50%、58%、8.5%。颅骨内板蝶额缝没有出现 1 度愈合; 矢状缝没有出现 1—2 度愈合; 冠状缝没有出现 1—3 度愈合; 蝶顶缝、蝶鳞缝没有出现 3 度愈合; 4 度愈合的有矢状缝、冠状缝、人字缝、蝶额缝、蝶顶缝、蝶鳞缝、枕乳突缝、顶乳突缝和鳞缝, 其百分率分别为 69%、100%、58%、66%、41%、15.5%、31%、15%、7%。

10. 颅骨外、内板缝愈合年龄(岁): 见表 3、4。

表 3 颅骨外板缝愈合年龄(岁)

| 颅 缝       | 蝶额缝           | 矢状缝           | 冠状缝           | 人字缝           | 蝶顶缝           | 蝶鳞缝           | 枕乳突缝          | 顶乳突缝          | 鳞缝            |
|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 开始愈合(1 度) | 17<br>(15—19) | 22<br>(20—24) | 22<br>(20—24) | 27<br>(25—29) | 27<br>(25—29) | 27<br>(25—29) | 27<br>(25—29) | 37<br>(35—39) | 37<br>(35—39) |
| 完全愈合(4 度) | 52<br>(50—54) | 37<br>(35—39) | 47<br>(45—49) | 42<br>(40—44) | 52<br>(50—54) | 62<br>(60—64) | 62<br>(60—64) | 84 岁未<br>完全愈合 | 84 岁未<br>完全愈合 |

颅骨外、内板缝的愈合年龄是根据上述九个颅骨缝的研究中得出的, 是以出现 1 度和 4 度愈合为依据, 取这些愈合度的各年龄组的中间数作为年龄估计。在颅骨缝上估计年龄时, 是以颅缝的平均愈合度 1 度和 4 度为标准, 要在外、内板缝同时观察后作出判断,

表 4 颅骨内板缝愈合年龄(岁)

| 颅 缝       | 蝶额缝           | 矢状缝           | 冠状缝           | 人字缝           | 蝶顶缝           | 蝶鳞缝           | 枕乳突缝          | 顶乳突缝          | 鳞缝            |
|-----------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| 开始愈合(1 度) | 17<br>(15—19) | 22<br>(20—24) | 22<br>(20—24) | 27<br>(25—29) | 22<br>(20—24) | 27<br>(25—29) | 27<br>(25—29) | 37<br>(35—39) | 37<br>(35—39) |
| 完全愈合(4 度) | 42<br>(40—44) | 42<br>(40—44) | 37<br>(35—39) | 42<br>(40—44) | 47<br>(45—49) | 62<br>(60—64) | 62<br>(60—64) | 62<br>(60—64) | 78<br>(75—84) |

可提高判断率；研究结果还表明颅骨缝的愈合情况在人种、民族以及个体之间存在着差异，有些个体的颅骨缝提前或推迟愈合的可能性是存在的。因此，我们认为不能将颅骨缝愈合度作为估计年龄的唯一依据。

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## THE RELATION BETWEEN THE AGE AND CHANGES IN CHINESE SKULL SUTURE

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**Key words**    Skull suture fusing degree; Age estimation; Chinese

### Summary

To study the relation between the age and the changes in skull suture of Chinese for the purpose of the estimation of age by the skull, 139 male Chinese skulls were investigated. The age of the skulls ranges from 15 to 84 years. The study was made on nine sutures of the external and internal plate of the skulls, namely: sagittal, coronary, lambdoid, sphenofrontal, sphenoparietal, sphenosquamous, occipitomastoid, parietomastoid and squamous suture. The results obtained are as follows:

#### 1. The skull external plate suture

a. Between 15 and 19 ages, the degree 1 of fusion begins to be observed at sphenofrontal suture.

b. Between 20 and 29 ages, the degree 1 of the fusion at coronary suture accounts for more than 47% of all cases of this group.

c. Between 30 and 39 ages, the degree 2 to 4 of the fusion begins to be observed at sagittal and lambdoid suture.

d. Between 40 and 49 ages, the degree 1 to 3 of the fusion begins to be observed at sphenofrontal, sphenoparietal and occipitomastoid suture. The percentage of degree 4 of the fusion at sagittal, coronary and lambdoid suture, is 10%, 6%, 9%, respectively.

e. Between 50 and 59 ages, the degree 1 to 3 of the fusion begins to be observed at sphenosquamous and occipitomastoid suture. The percentage of degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal and sphenoparietal suture, is 10.5%, 15%, 15%, 30%, 25%, respectively.

f. Between 60 and 69 ages, the percentage of degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal, sphenoparietal, sphenosquamous and occipitomastoid suture, is 16%, 17.5%, 10%, 38%, 34%, 4%, 17.5%, respectively.

g. Between 70 and 84 ages, the percentage of degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal, sphenofrontal and occipitomastoid suture, is 50%, 41%, 17%, 50%, 8.5%, respectively.

h. The relation between the skull external plate suture fusion degree and age was shown in table 3.

## 2. The skull internal plate suture

a. Between 15 and 19 ages, the degree 1 of the fusion begins to be observed at sphenofrontal suture.

b. Between 20 and 29 ages, the degree 1 of the fusion at coronary suture accounts for more than 32% of all cases of all cases of this group.

c. Between 30 and 39 ages, the degree 2 to 4 of the fusion begins to be observed at coronary suture.

d. Between 40 and 49 ages, the degree 1 to 3 of the fusion begins to be observed at sphenosquamous, occipitomastoid and parietomastoid suture, The percentage of degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal and sphenoparietal suture, is 19.5%, 55%, 16%, 42%, 18.5%, respectively.

e. Between 50 and 59 ages, the percentage of the degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal and sphenoparietal suture, is 40%, 85%, 35%, 45%, 25%, respectively.

f. Between 60 and 69 ages, the percentage of degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal, sphenoparietal, sphenosquamous, occipitomastoid and parietomastoid suture, is 60%, 96%, 56.5%, 60.5%, 26.5%, 10%, 20%, 10%, respectively.

g. Between 70 and 84 ages, the degree 3 of the fusion at sphenoparietal and sphenosquamous suture is not found. The percentage of degree 4 of the fusion at sagittal, coronary, lambdoid, sphenofrontal, sphenoparietal, sphenosquamous, occipitomastoid, parietomastoid squamous, is 69%, 100%, 58%, 66%, 41%, 15.5%, 31%, 15.5%, 7%, respectively.

h. The relation between the skull internal plate suture fusion degree and age was shown in table 4.