From: "ROOT" <root@sctimst.ac.in>
To: "ROOT" <root@sctimst.ac.in>
Date: 28/10/2025 08:23 AM
Subject: Invitation for CGR

Greetings from AIIMS, Rishikesh !!
The next CGR will be held on Oct 28, 2025, in the CPD Hall, AIIMS Rishikesh, from **8:00 AM to 9:00 AM**. You can join online through the following link:

Meeting link:
https://aiimsrishikesh.webex.com/aiimsrishikesh/j.php?MTID=m5cb2847de31c4019dd1da84fad6548fc
Tuesday, Oct 28, 2025, 8:00 AM | (UTC+05:30) Chennai, Kolkata, Mumbai, New Delhi

Meeting number: 2517 738 9290
Meeting password: 281025

Thanks & Regards
Regional Resource Centre
Dept of Telemedicine
AIIMS Rishikesh

DEPARTMENT OF ANATOMY

(JOURNAL CLUB- 28TH OCTOBER 2025)

Name of article	Age-Related Changes of the Pineal Gland in Humans: A Digital Anatomo-Histological Morphometric Study on Autopsy Cases with Comparison to Predigital-Era Studies
Journal	Medicina
Impact Factor	2.4
Presentor	Dr. Urvi Sharma
Moderator	Dr. Pooja Bhadoria

Abstract

Background

The pineal gland is a small endocrine organ that regulates circadian rhythm primarily through melatonin secretion. With advancing age, the gland undergoes progressive degenerative changes such as calcification, gliosis, and cyst formation, which can impair its secretory activity. Most prior studies have relied on imaging or subjective morphometric methods, with limited digital histological analysis in human autopsy samples.

Aims and Objectives

The study aimed to evaluate age-related morphometric and histological changes in the human pineal gland using digital histological and immunohistochemical methods. Specific objectives included: (1) assessment of pineal volume across age and gender groups, (2) quantification of calcification, gliosis, and cystic

degeneration, (3) identification of architectural patterns, and (4) correlation of morphological findings with clinical variables such as obesity, diabetes, and dementia.

Methodology

This retrospective autopsy-based study was conducted at the Emergency Clinical County Hospital, Cluj-Napoca, Romania (2017–2019). Out of 112 collected glands, 72 were analyzed (33 females, 39 males) after excluding cases with necrosis or tumors. Tissues were stained with H&E and GFAP immunohistochemistry. Digital morphometry was performed using 3DHISTECH Case Viewer and ImageJ software to calculate gland volume and percentage parenchymal replacement. Calcification morphology was analyzed under polarized light microscopy. Statistical tests included Mann–Whitney U and Fisher's exact tests.

Results

No significant gender difference was found in gland volume ($p = 0.647$). Architectural patterns varied significantly with age ($p = 0.01$) and gender ($p = 0.039$). Calcifications showed strong age association ($p = 0.001$), with globular forms predominating. Glial cysts showed no significant correlation with clinical parameters. GFAP staining indicated progressive glial proliferation with increasing age.

Discussion

Findings corroborate previous morphometric and histopathological studies, confirming age-dependent pineal degeneration. The digital approach provided objective quantification comparable to earlier manual methods.

Conclusion

The human pineal gland exhibits measurable degenerative changes with aging—marked gliosis, calcification, and cystic alterations. These morphological markers hold potential as adjunctive tools in aging, neurodegenerative, and forensic pathology research.