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Clinicopathological association of Chronic Rhinosinusitis with Nasal Polyp (CRSwNP) and periostin expression

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Background
In the recent years, periostin (POSTN), a gene encoding an extracellular matrix protein with similarity to fasciclin family has emerged as a potential biomarker for various types of cancers. Besides that, POSTN also plays a role in stimulating eosinophil migration and activation in chronic inflammation and immune pathways. Chronic rhinosinusitis (CRS) with nasal polyp (NP) (CRSwNP) is mediated by Th2-/eosinophilic inflammation type of immune response [1]. POSTN has been proposed to be found in NP tissues and contribute to formation of NP in CRS patients. In this study, we investigated the POSTN protein expression in NP tissue and then we determined its association with the clinicopathological features of CRSwNP patients.
Methodology
Tissue samples were collected from 24 CRSwNP patients and their clinicopathological features such as demographic data (age, gender, race and smoking history), clinical (history of bronchial asthma and/or atopy, SNOT-22 scores, Lund-Kennedy scores, Lund-Mackay scores), haematological (percentage of serum eosinophils and total IgE) and pathological features (tissue eosinophil count, degree of inflammation, mucosal ulceration, squamous metaplasia, and fibrosis) were evaluated. POSTN protein expression was assessed by immunohistochemical analysis. A single linear regression analysis was performed to find the association of POSTN protein expression with the clinicopathological features.
Results and Discussion
Expression of POSTN protein was detected in all 24 NP samples. The mean IHC score POSTN is 7.31. There was no significant association of POSTN protein expression with clinicopathological features (gender, smoking history, history of bronchial asthma
and/or atopy, SNOT-22 scores, Lund-Kennedy scores, Lund-Mackay scores, percentage of serum eosinophils, total IgE, tissue eosinophil count and other histopathological features (p value of 0.66, 0.11, 0.64, 0.57, 0.76, 0.17, 0.09, 0.21, 0.66, and 0.57 respectively) except for age (p=0.045). Our findings of POSTN expressed in all NP tissue staining the area of subepithelial tissue and infiltrating inflammatory cells was consistent with other study [1-2]. POSTN is produced in fibroblasts, endothelial and epithelial cells by interleukin (IL)-4 and IL-13 stimulation. Fibroblasts is found to be abundant in NP tissue. Tissue eosinophilia (eosinophil count >10 per high power field) is known to be a hallmark for CRSwNP and a predictor for NP recurrence. Ninomiya et al. 2018 found that protein expression associated with severity of CRSwNP but not in our study. Even though we excluded those patients taking steroids which can suppress the periostin production, we should have exclude those who was asthmatic and on any immunomodulator. Lebrikizumab was shown to be effective in controlling exacerbation of asthmatic patients with high POSTN level in their serum [1]. A larger sample size study at multi-centre setting would be more representative of CRSwNP population.
Conclusion
Although presence of POSTN is detected within all nasal polyp tissues, however, POSTN protein expression was not significantly associated with clinicopathological features of CRSwNP. Therefore, tissue POSTN appears to have no role in evaluation of patients with CRSwNP.

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Detection of herpes simplex virus-1 by direct immunofluorescence and viral isolation from cerebrospinal fluid

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Background
Herpes simplex virus (HSV) is the human herpesvirus that leads to herpes simplex encephalitis or meningoencephalitis and is frequently lethal if not treated properly. Here, we described a case of a 21-year-old man who presented with acute confusion and abnormal behaviour and was later diagnosed with HSV-1 meningoencephalitis based on immunofluorescence and viral isolation from cerebrospinal fluid.
Methodology
A lumbar puncture was performed immediately during admission to the ward. Cerebrospinal fluid was also sent for viral culture. The culture was inoculated into human cells in culture (HEp-2) cell monolayers and observed for cytopathogenic effect (CPE). Then the slide was prepared for direct immunofluorescence staining using fluorescein isothiocynate-conjugated HSV type 1 and HSV type 2 antisera. Positive findings would demonstrate cells with fluorescent staining, whereas negative specimens would demonstrate cells with a reddish-brown counterstain. Informed consent to publish had been obtained.
Results and Discussion
Brain MRI was performed for further evaluation, which showed a focal area of gyral thickening at the left frontoparietal lobes with leptomeningeal enhancement at the left Sylvian fissure, suggestive of meningoencephalitis, and no hydrocephalus was noted. The CSF results revealed 0 polymorphs cells/mm^3 and lymphocyte count, with 0 pus cells. CSF biochemistry showed glucose of 1.67 mg/dl and a very high total protein of 1596 mg/dl. The results of viral culture were obtained on admission day ten. After 10 days of culture with daily CPE observation, CPE evidence of HSV was detected. The prepared slide was observed under the ultraviolet microscope and revealed positive for HSV-1 and negative for HSV-2. HSV-1 has accounted for more than 90% of all herpes simplex encephalitis cases in adults and children. It spreads by oral contact and primarily results in cold sores, while HSV-2 is sexually transmitted and causes genital herpes.
Conclusion
It has been proven that immunofluorescence antigen detection is a quick, accurate, and sensitive method for distinguishing HSV-1 and HSV-2 antigen in the cerebrospinal fluid of those infected individuals.