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ABOUT THE JOURNAL

Aims and Scope

Asian Archives of Pathology (AAP) is an open access, peer-reviewed journal. The journal was first published in 2002 under the Thai name "วารสารราชวิทยาลัยพยาธิแพทย์แห่งประเทศไทย" and English name "Journal of the Royal College of Pathologists of Thailand". The journal is a publication for workers in all disciplines of pathology and forensic medicine. In the first 3 years (volumes), the journal was published every 4 months. Until 2005, the journal has changed its name to be "Asian Archives of Pathology: The Official Journal of the Royal College of Pathologists of Thailand", published quarterly to expand the collaboration among people in the fields of pathology and forensic medicine in the Asia-Pacific regions and the Western countries.

The full articles of the journal are appeared in either Thai or English. However, the abstracts of all Thai articles are published in both Thai and English languages. The journal features letters to the editor, original articles, review articles, case reports, case illustrations, and technical notes. Diagnostic and research areas covered consist of (1) **Anatomical Pathology** (including cellular pathology, cytopathology, haematopathology, histopathology, immunopathology, and surgical pathology); (2) **Clinical Pathology (Laboratory Medicine)** [including blood banking and transfusion medicine, clinical chemistry (chemical pathology or clinical biochemistry), clinical immunology, clinical microbiology, clinical toxicology, cytogenetics, parasitology, and point-of-care testing]; (3) **Forensic Medicine (Legal Medicine or Medical Jurisprudence)** (including forensic science and forensic pathology); (4) **Molecular Medicine** (including molecular genetics, molecular oncology, and molecular pathology); (5) **Pathobiology**; and (6) **Pathophysiology**.

All issues of our journal have been printed in hard copy since the beginning. Around the late 2014, we developed our website (www.asianarchpath.com) in order to increase our visibility. We would like to acknowledge that our journal has been sponsored by the Royal College of Pathologists of Thailand. We have the policy to disseminate the verified scientific knowledge to the public on a non-profit basis. Hence, we have not charged the authors whose manuscripts have been submitted or accepted for publication in our journal.

On the other hand, if any authors request a printed copy of the journal issue containing the articles, each of the copied journals costs 450 bahts for Thai authors and 30 United States dollars (USD) for international authors.

Publication Frequency

Four issues per year

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LETTER TO THE EDITOR

Prognostic value of cardiac troponins in COVID-19 infection

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The novel acute respiratory syndrome caused by coronavirus appears to have emerged from Wuhan, China, in December of 2019 (COVID-19) and has now developed to a rapid pandemic spread. At the end of August 2020, the infection has resulted in more than 25 million documented cases with more than 850,000 deaths worldwide. Although the mortality is often associated with acute respiratory distress syndrome, there are increasing reports of cardiac involvement with electrocardiographic abnormalities and elevated serum cardiac biomarkers which also are related to increased incidence of mortality.

In the past decades, measurement of cardiac troponin T (cTnT) and troponin I (cTnI) has become laboratory standard method for diagnosis of myocardial injury and infarction, thereby replacing creatine kinase (CK) and creatine kinase myocardial band (CK-MB) determinations. Sophisticated immunoassays have been developed which showed cardiac troponin testings with improved analytical sensitivity and precision. The new assays have also been shown to have a high diagnostic performance and prognostic value in patients with chest pain presenting to the emergency department[1,2]. With regard to COVID-19 infection, several studies reported significantly higher serum levels of cardiac troponins in severe disease requiring admission to the intensive care unit (ICU) and in nonsurvivors as compared to those with milder symptoms and in survivors. In addition, significant troponin elevations were noted in patients with severe form of the disease who finally progressed to multiorgan dysfunction, failure and death.

Myocardial injury, defined by an increase in troponin serum concentrations above the 99th percentile reference limit, seems to be a common manifestation in COVID-19 patients. Kang et al.[3] summarised the results from 6 studies in China and reported the prevalence of troponin elevations to be between 7.2 to 27.8%. More importantly, increased levels of the troponins significantly correlate with disease severity and mortality even after controlling for other comorbidities. In this context, Zhou et al.[4] found that 17% of the 191 COVID-19 patients developed acute cardiac injury, and nonsurvivors showed significantly higher blood levels of high-sensitivity cardiac troponin I (hs-cTnI) on admission (22.2 ng/L) when compared with the levels in survivors (3 ng/L). Similar results were obtained from two recent studies in Wuhan, China. Huang et al.[5] reported the prevalence of increased hs-cTnI to be 31% in patients admitted to the ICU as compared with those without ICU admission of 4%. In the study by Wang et al.[6], hs-cTnI levels in the ICU patients were significantly higher than those of the non-ICU patients (11.0 versus 5.1 pg/mL). In addition, Liang et al. [7] have demonstrated in a study of 1,590 COVID-19 patients from 575 hospitals in China that the mean levels of hs-cTnI in patients with crititical illness (defined as the composite measure of admission to the ICU, invasive ventilation, or death) were markedly higher than those without (288.1 versus 42.7 pg/mL). As shown in a study on 274 COVID-19 patients by Chen et al.[8], hs-cTnI levels on admission were significantly higher in deceased patients (40.8 pg/mL) than in recovered patients (3.3 pg/mL), with eight deceased patients having peak hs-cTnI levels above 1,000 pg/mL and two above 10,000 pg/mL. Similarly, Nie et al.[9] have demonstrated in a study of 311 laboratory-confirmed COVID-19 cases that hs-cTnI concentrations in the non-survivor group were significantly higher than those in the discharged group (32.5 versus 2.8 ng/L), and their levels were independent predictor of mortality in these patients. Furthermore, two another studies have shown that the in-hospital mortality was much higher in patients with myocardial injury as compared to those without: 51.2 versus 4.5% in the study by Shi et al.[10], and 59.6 versus 8.9% in the study by Guo et al[11]. Of particular interest was the observation by the latter authors that the mortality during hospitalisation was higher in patients with elevated cTnT levels but without underlying cardiovascular disease (CVD) (37.50%) than those with underlying CVD but normal cTnT levels (13.33%). The value of serial measurements of cTnI in predicting mortality was recently demonstrated in a large trial of 2,736 COVID-19 patients from five New York City hospitals. It was found that of the patients with increasing troponins over time, 24% (223 of 922) died, compared to 12% (102 of 811) of those with decreasing troponins and 18% (181 of 1,003) of those with no subsequent troponin measurements[12]. In a meta-analysis of 6 studies involving 1,231 COVID-19 patients, elevated cardiac troponin levels were found to be significantly associated with an increase in in-hospital mortality, with a pooled odds ratio of 22.7[13].

In conclusion, the severity of COVID-19 infection is highly associated with acute cardiac injury, and myocardial cell injury with release of cardiac troponin into the circulation is

associated with mortality. Initial measurements of troponin serum concentrations early after hospitalisation for COVID-19 infection, as well as longitudinal monitoring during hospital stay, therefore, may provide an effective means in predicting the progression of the disease towards a worse clinical outcomes[14].

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CASE REPORT

Rhinosporidiosis of maxillary sinus: an unusual site – a case report

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Conflict of interest: The author declares that he/she has no conflicts of interest with the contents of this article.

Abstract

Rhinosporidiosis, a rare form of fungal sinusitis usually affects nasal mucosa with mass forming lesion mimicking nasal polyp. Here we present a case of rhinosporidiosis at very unusual location – primarily affecting maxillary sinus, presenting as nasal polyp and causing bony erosion of maxilla. Thus fungal sinusitis should be kept in mind as differential diagnosis in case of sinonasal mass lesion.

Keywords: maxillary sinus; polyp; rhinosporidiosis

Introduction

Rhinosporidiosis is a rare and chronic infestation caused by fungus *Rhinosporidium seeberi*, seen in India and Sri Lanka and is hyperendemic in southern parts of Tamil Nadu. It predominantly affects mucus membrane of nose and nasopharynx causing polypoidal growth[(1)]. We report of a case of Rhinosporidiosis presenting as nasal polyp and affecting maxillary sinus. Caldwell-Luc operation was performed.

Case Report

A 32-year-old female patient came to the outpatient department of Otorhinolaryngology with complaint of nasal obstruction since 1 year. She has recurrent episodes of nasal blockage and rhinorrhoea since 1 year. There was no history of otalgia, epistaxis or no other contributing medical history. Anterior rhinoscopy revealed pinkish polypoidal yet friable looking mass filling right nasal cavity. Nasal mucosa was swollen, congested with non-pulsatile, non-expansile polyp like mass with it. X-ray examination of the paranasal sinuses showed haziness of maxillary sinus on right side with soft tissue mass in right nasal cavity. A differential diagnosis of polyp, cholesteatoma, fungal infection of maxillary sinus was put forward. Caldwell-Luc operation was performed and parts of polypoidal growth, affected mucosa and cheesy looking material was removed and all of these tissues were sent for histopathology.

Specimen received consisted of multiple soft tissue pieces, collectively measuring 3.5 x 3 x 1 cm. On gross examination, fragmented parts of polyp with irregular/nodular surface, tense shiny white mucosa, and yellowish white friable cheesy material was seen (*Figure 1*). Polyp and mucosal tissue fragments also showed such yellow white spots on its surface. Haematoxylin and eosin (H&E) – stained section showed polyp fragments covered by respiratory epithelium with densely inflamed vascular connective tissue in its substance (*Figure 2*). There was abundant amount of pinkish friable looking necrosis. Bony spicules with attached epithelium representing bony erosion were also seen. The necrotic areas had numerous birefringent thick-walled sporangia containing numerous "***endospores (daughter spores)***" in different stages of development. These histological findings were characteristics of rhinosporidiosis (*Figures 3 – 4*).

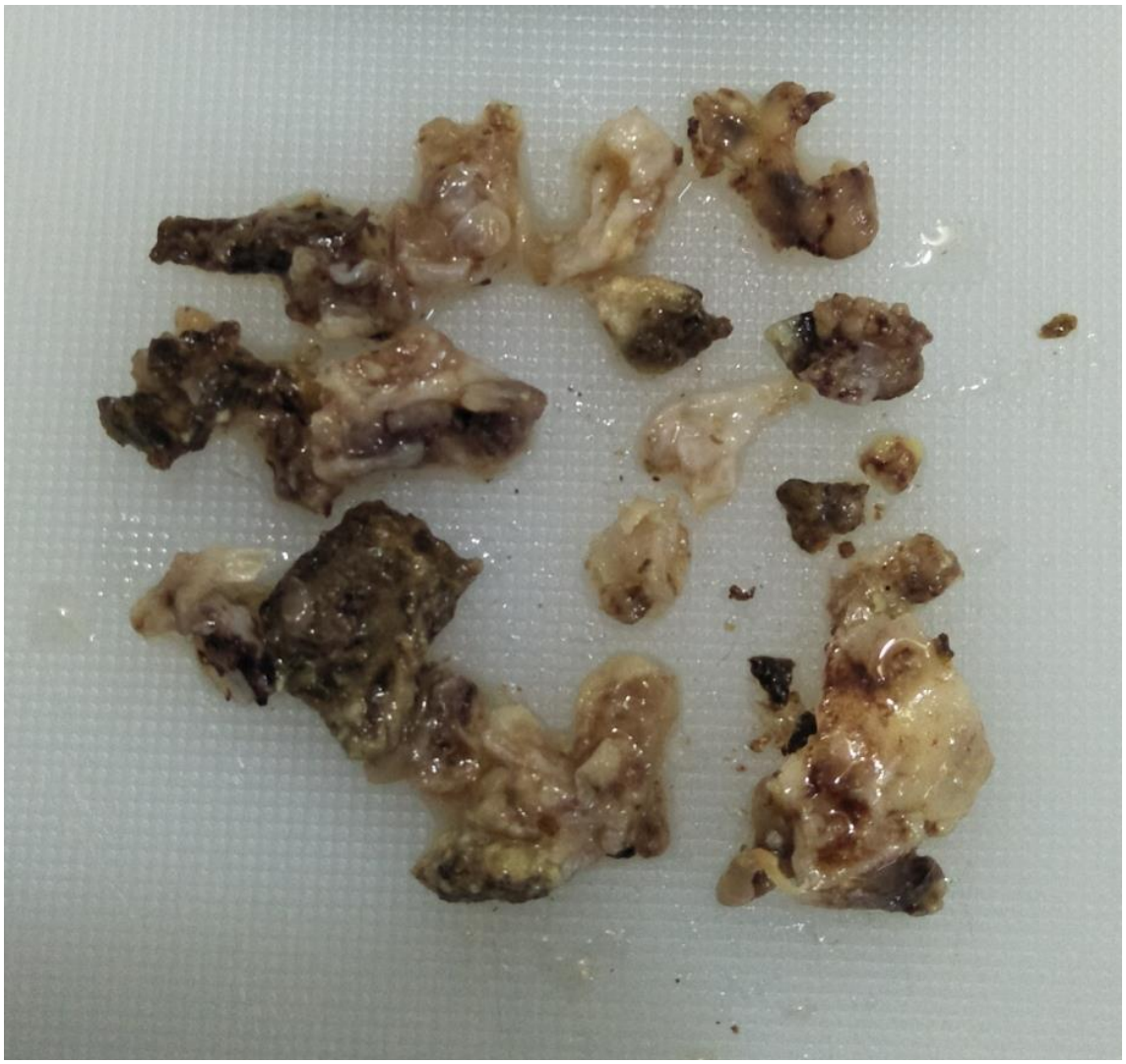

Figure 1 Multiple polyp fragments with tense shiny mucosal wall, irregular nodular looking surface and cheesy material.

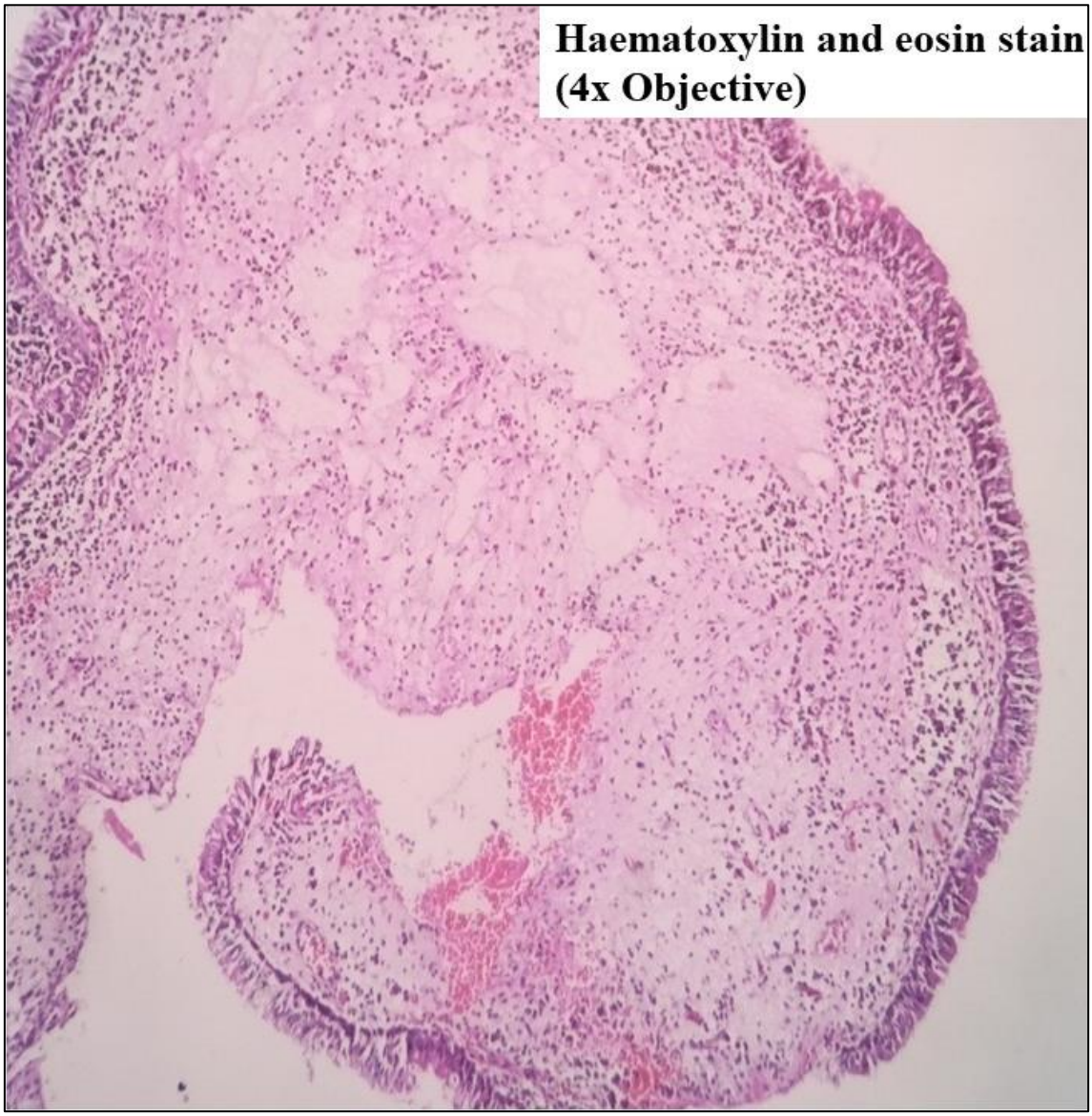

Figure 2 Polyp fragment lined by respiratory epithelium and densely inflamed fibrovascular connective tissue in its substance.

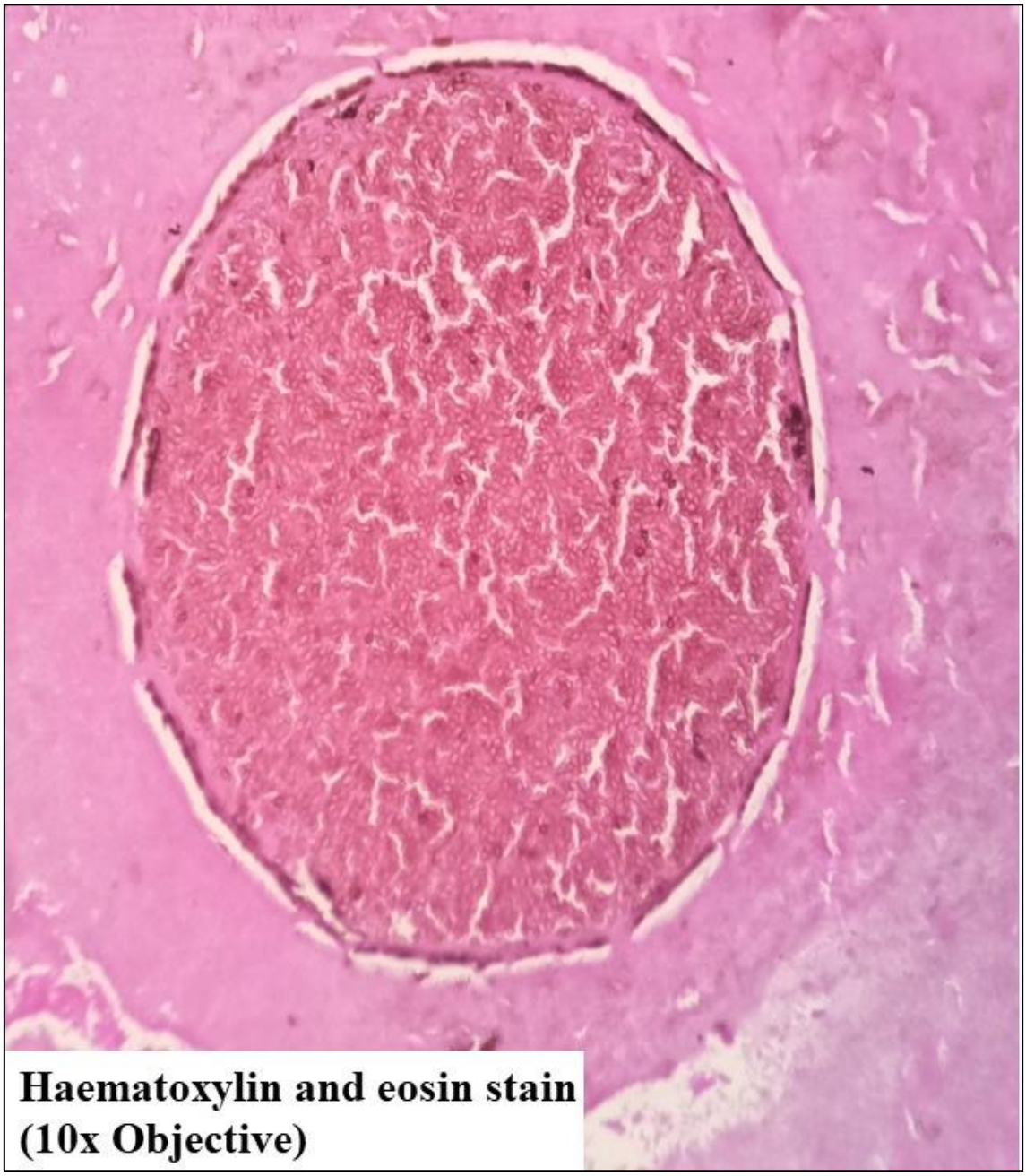

Figure 3 Large thick-walled sporangium with numerous endospores within it.

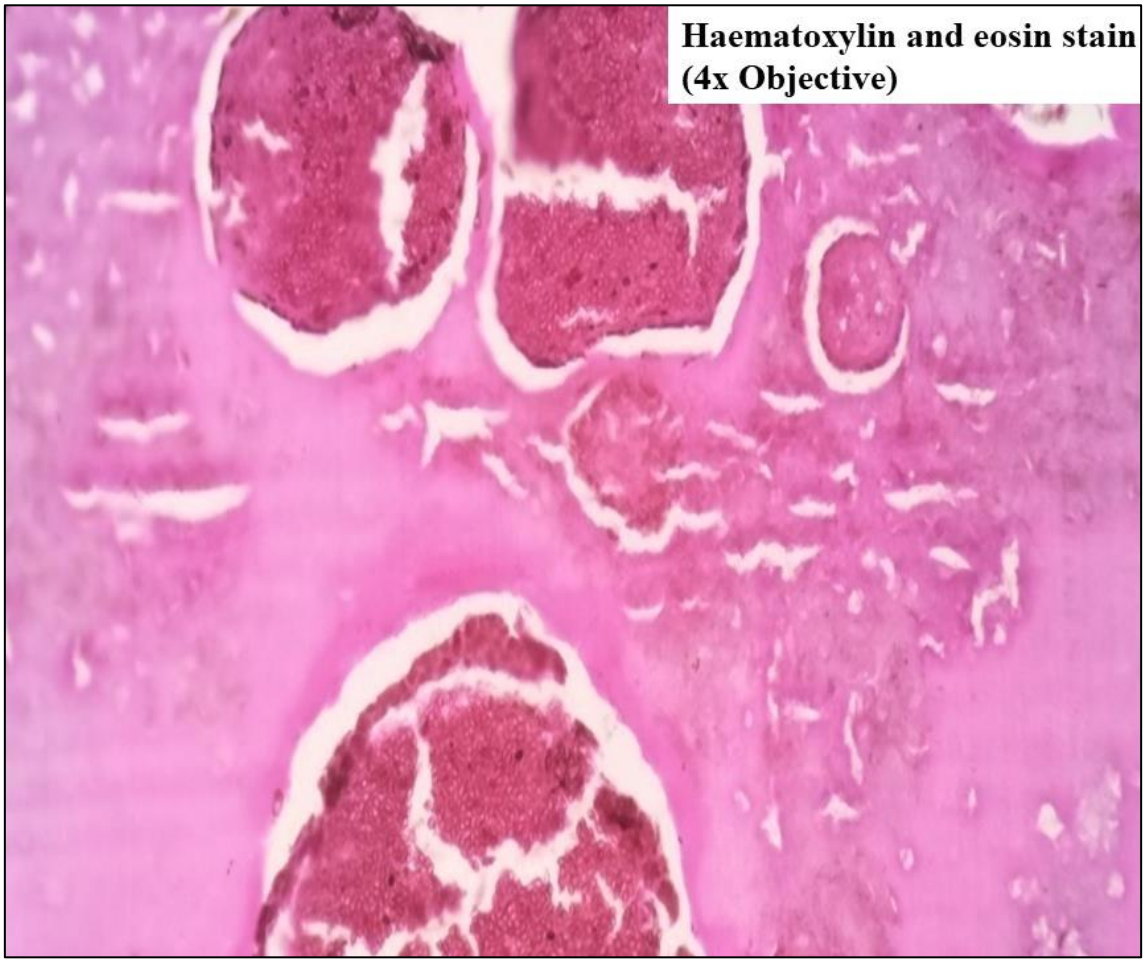

Figure 4 Numerous sporangia with daughter spores surrounded by pinkish fibrillary necrotic material.

Discussions

Rhinosporidiosis is a chronic infectious granulomatous disease of the upper respiratory tract characterised by the formation of polypoid masses[(2)]. It affects all ages but is most common in the third and fourth decades. The most common sites are nasal mucosa, nasopharynx, oropharynx and nasolacrimal duct. The most common symptoms are nasal obstruction, epistaxis, and rhinorrhoea. Other sites of involvement may include the larynx, tracheobronchial tree, oesophagus, conjunctiva and ears.

Habitual bathing in rivers and ponds has been strongly associated with rhinosporidiosis[(3)]. Water and soil are believed to be the reservoir of infection, given the increased incidence of disease found in sand workers, paddy cultivators, and people bathing in stagnant muddy waters. Mode of transmission is through water or dust, from which the endospores penetrate

the nasal mucosa, mature into sporangium within the submucosal compartment, and after maturation burst with release of sporangia into surrounding tissue.

The biological agent has a mature stage that consists of large, thick-walled spherical structures (called ***sporangia***) containing smaller "***daughter cells*** (called ***sporangiospores*** or ***endospores***)"[4]. Sporangia containing innumerable endospores seen with haematoxylin and eosin stain; organisms also stain with periodic acid–Schiff, mucicarmine and Gomori methenamine silver stains[2,4]. Since it is primarily a disease affecting the orofacial region, it is of great value to the oral physician, oral radiologist and oral surgeon, and a necessary differential to be kept in mind for sinonasal masses. As all attempt to cultivate the causative organism in vitro has been unsuccessful, the diagnosis depends on clinical and histopathological findings[2,5].

Surgical excision is the mainstay of treatment. It has been advocated that a wide surgical margin is necessary to reduce the risk of recurrence, though this may be associated with significant morbidity like haemorrhage and nasal septal perforation. Because of this, limited surgical excision with cautery of the base of the lesion has been attempted, and to further reduce the risk of recurrence[4].

Systemic dapsone therapy is used as an adjunct to surgical intervention and helps in preventing recurrences in immunocompetent patients and is known to prevent recurrence by arresting the maturation of sporangia and promoting fibrosis in adjacent tissues[4].

Conclusions

The rhinosporidiosis must be taken as a differential diagnosis of the nasal polypoid lesions or sinonasal mass. The intranasal lesions must always be evaluated with details, by making a critical anamnesis and always considering the patient's origin. Histopathological examination is necessary to find out aetiological factor[6].

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TECHNICAL NOTE

Histochemical scoring assessment (H-score)

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An evaluation of immunohistochemical staining is performed on a light microscope first using 10x objective (magnification of 100x) in order to scan and locate the histopathological appearances. Then the 40x objective (magnification of 400x) is subsequently applied for more detailed information on the staining[1,2].

An interpretation of immunoreactivity is based on the **histochemical scoring (H-score) assessment** incorporating both the staining intensity (*i*) and a percentage of stained cells at each intensity level (*Pi*). The *i* values are indicated as 0 (no evidence of staining), 1 (weak staining), 2 (moderate staining), and 3 (strong staining). The *Pi* values vary from 0% to 100%. The final H-score is derived from the sum of *i* multiplied by *Pi* as the equation shown below. This score, therefore, is in the range of 0 to 300[3-5].

$$\text{H-score} = (0 \times P_0) + (1 \times P_1) + (2 \times P_2) + (3 \times P_3)$$

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APPENDIX 1
INFORMATION FOR AUTHORS

All authors listed in a paper submitted to Asian Archives of Pathology (AAP) must have contributed substantially to the work. It is the corresponding author who takes responsibility for obtaining permission from all co-authors for the submission. When submitting the paper, the corresponding author is encouraged to indicate the specific contributions of all authors (the author statement, with signatures from all authors and percentage of each contribution can be accepted). Examples of contributions include: designed research, performed research, contributed vital new reagents or analytical tools, analysed data, and wrote the paper. An author may list more than one type of contribution, and more than one author may have contributed to the same aspect of the work.

Authors should take care to exclude overlap and duplication in papers dealing with related materials. See also paragraph on Redundant or Duplicate Publication in "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" at http://www.icmje.org/index.html.

The submitted manuscripts will be reviewed by the members of the Editorial Board or the expert reviewers. At the discretion of the Editorial Board, the manuscripts may be returned immediately without full review, if deemed not competitive or outside the realm of interests of the majority of the readership of the Journal. The decision (reject, invite revision, and accept) letter will be coming from the Editorial Board who has assumed responsibility for the manuscript's review. The editor's decision is based not just on technical merit of the work, but also on other factors such as the priority for publication and the relevance to the Journal's general readership. All papers are judged in relation to other submissions currently under consideration.

Categories of Manuscripts

1. Letters to the Editor

The letters to the editor are the reactions to any papers published in AAP. These letters will be reviewed by the Editorial Board and sent to the authors of the original paper with an invitation to respond. Letters and eventual responses will be published together, when appropriate.

- *Word Count: 300 – 500 words (excluding references and figure or table legends)*
- *Abstract: Not required*
- *References: Maximum of 10*
- *Figure or Table: Maximum of 1 (if needed)*

2. Original Articles

The original articles are the researches describing the novel understanding of anatomical pathology, clinical pathology (laboratory medicine), forensic medicine (legal medicine or medical jurisprudence), molecular medicine or pathobiology. Systematic reviews, meta-analyses and clinical trials are classified as articles. The articles should be clearly and concisely written in the well-organised form (see ***Organisation of Manuscripts***): abstract; introduction; materials and methods; results; discussion; and conclusions. The manuscripts that have passed an initial screening by the Editorial Board will be reviewed by two or more experts in the field.

- *Word Count: 3,000 – 5,000 words (excluding abstract, references, and figure or table legends)*
- *Structured Abstract (see **Organisation of Manuscripts**): 150 – 200 words*
- *References: Maximum of 150*
- *Figures or Tables: Maximum of 6*

3. Review Articles

The review articles are generally invited by the Editor-in-Chief. They should focus on a topic of broad scientific interest and on recent advances. These articles are peer-reviewed before the final decision to accept or reject the manuscript for publication. Therefore, revisions may be required.

- *Word Count: 3,000 – 5,000 words (excluding abstract, references, and figure or table legends)*
- *Unstructured Abstract: 150 – 200 words*
- *References: Maximum of 150*
- *Figures or Tables: Maximum of 4*

4. Case Reports

AAP limits publication of case reports to those that are truly novel, unexpected or unusual, provide new information about anatomical pathology, clinical pathology (laboratory medicine) or forensic medicine (legal medicine or medical jurisprudence). In addition, they must have educational value for the aforementioned fields. The journal will not consider case reports describing preventive or therapeutic interventions, as these generally require stronger evidence. Case reports that involve a substantial literature review should be submitted as a review article. The submitted case reports will undergo the usual peer-reviewed process.

- *Word Count: 1,200 – 2,000 words (excluding abstract, references, and figure or table legends)*
- *Unstructured Abstract: 150 – 200 words*
- *References: Maximum of 20*
- *Figures or Tables: Maximum of 4*

5. Case Illustrations

Case illustrations are aimed to provide education to readers through multidisciplinary clinicopathological discussions of interesting cases. The manuscript consists of a clinical presentation or description, laboratory investigations, discussion, final diagnosis, and up to 5 take-home messages (learning points). Regarding continuous learning through self-assessment, each of the case illustrations will contain 3 – 5 multiple choice questions (MCQs) with 4 – 5 suggested answers for each question. These MCQs are placed after the final diagnosis and the correct answers should be revealed after the references. The questions and take-home messages (learning points) are included in the total word count. The manuscripts that have passed an initial screening by the Editorial Board will be reviewed by two experts in the field.

- *Word Count: 1,000 – 2,000 words (excluding references and figure or table legends)*
- *Abstract: Not required*
- *References: Maximum of 10*
- *Figures: Maximum of 2*
- *Tables: Maximum of 5*

6. Technical Notes

The technical notes are brief descriptions of scientific techniques used in the anatomical pathology, clinical pathology (laboratory medicine), forensic medicine (legal medicine or medical jurisprudence), molecular medicine or pathobiology. The submitted manuscripts are usually peer-reviewed.

- *Word Count: Maximum of 1,000 words (excluding references and figure or table legends)*
- *Abstract: Not required*
- *References: Maximum of 5*
- *Figures or Tables: Maximum of 2*

Organisation of Manuscripts

1. General Format

The manuscripts written in English language are preferable. However, Thai papers are also acceptable, but their title pages, abstracts, and keywords must contain both Thai and English. These English and Thai manuscripts are prepared in A4-sized Microsoft Word documents with leaving 2.54-cm (1-inch) margins on all sides. All documents are required to be aligned left and double-spaced throughout the entire manuscript. The text should be typed in 12-point regular Times New Roman font for English manuscript and 16-point regular TH SarabunPSK font for Thai manuscript.

The running titles of English and Thai manuscripts are placed in the top left-hand corner of each page. They cannot exceed 50 characters, including spaces between words and punctuation. For the header of English paper, the running title will be typed in all capital letters. The page number goes on the top right-hand corner.

Footnotes are not used in the manuscripts, but parenthetical statements within text are applied instead and sparingly. Abbreviations should be defined at first mention and thereafter used consistently throughout the article. The standard abbreviations for units of measure must be used in conjunction with numbers.

All studies that involve human subjects should not mention subjects' identifying information (e.g. initials) unless the information is essential for scientific purposes and the patients (or parents or guardians) give written informed consent for publication.

2. Title Page

The title page is the first page of the manuscripts and must contain the following:

- The title of the paper (not more than 150 characters, including spaces between words)
- The full names, institutional addresses, and email addresses for all authors (If authors regard it as essential to indicate that two or more co-authors are equal in status, they may be identified by an asterisk symbol with the caption "These authors contributed equally to this work" immediately under the address list.)
- The name, surname, full postal address, telephone number, facsimile number, and email address of the corresponding author who will take primary responsibility for communication with AAP.
- Conflict of interest statement (If there are no conflicts of interest for any author, the following statement should be inserted: "The authors declare that they have no conflicts of interest with the contents of this article.")

3. Abstract

A structured form of abstract is used in all Original Article manuscripts and must include the following separate sections:

- *Background: The main context of the study*
- *Objective: The main purpose of the study*
- *Materials and Methods: How the study was performed*
- *Results: The main findings*
- *Conclusions: Brief summary and potential implications*
- *Keywords: 3 – 5 words or phrases (listed in alphabetical order) representing the main content of the article*

4. Introduction

The Introduction section should clearly explain the background to the study, its aims, a summary of the existing literature and why this study was necessary or its contribution to the field.

5. Materials and Methods

The Materials and Methods section must be described in sufficient detail to allow the experiments or data collection to be reproduced by others. Common routine methods that have been published in detail elsewhere should not be described in detail. They need only be described in outline with an appropriate reference to a full description. Authors should provide the names of the manufacturers and their locations for any specifically named medical equipment and instruments, and all chemicals and drugs should be identified by their systematic and pharmaceutical names, and by their trivial and trade names if relevant, respectively. Calculations and the statistical methods employed must be described in this section.

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The Discussion section should focus on the interpretation and the significance of the findings against the background of existing knowledge. The discussion should not repeat information in the results. The authors will clearly identify any aspects that are novel. In addition, there is the relation between the results and other work in the area.

8. Conclusions

The Conclusions section should state clearly the main summaries and provide an explanation of the importance and relevance of the study reported. The author will also describe some indication of the direction future research should take.

9. Acknowledgements

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Thanks to anonymous reviewers are not allowed. If you do not have anyone to acknowledge, please write "Not applicable" in this section.

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- *Journal article*

1. Sibai BM. Magnesium sulfate is the ideal anticonvulsant in preeclampsia – eclampsia. Am J Obstet Gynecol 1990; 162: 1141 – 5.

- *Books*

  2. Remington JS, Swartz MN. Current Topics in Infectious Diseases, Vol 21. Boston: Blackwell Science Publication, 2001.

- *Chapter in a book*

  3. Cunningham FG, Hauth JC, Leveno KJ, Gilstrap L III, Bloom SL, Wenstrom KD. Hypertensive disorders in pregnancy. In: Cunningham FG, Hauth JC, Leveno KJ, Gilstrap L III, Brom SL, Wenstrom KD, eds. Williams Obstetrics, 22nd ed. New York: McGraw-Hill, 2005: 761 – 808.

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- *Results*
- *Discussion*
- *Conclusions*
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- *Take-Home Messages (Learning Points)*
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- *References*
- *Correct Answers to MCQs*
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