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## Microbiological Analysis and Antibiogram Profile in Pharyngitis Cases and its Treatment with Antibiotic

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### Abstract:

Acute pharyngitis is a common infection that is typically managed in the outpatient setting. While respiratory viruses are responsible for the majority of cases, group A streptococcus (GAS) is the most common bacterial cause of what is generally referred to as strep throat. There is much room for improvement in the management of acute pharyngitis in children and adolescents. Most physicians use appropriate management strategies, however a substantial number uses inappropriate ones, particularly for children with likely viral pharyngitis. Efforts to help physicians improve practices will need to be multifaceted and should include health policy and educational approaches.

Infections of the throat have a tremendous impact on public health. According to the World Health Organization is noticed that bacterial resistance is growing day by day. Appropriate management of acute pharyngitis depends on proper use and interpretation of clinical findings, rapid antigen-detection tests and throat cultures. The aim of this study is to see the incidence of sore throat in Tetovo and raising awareness in administration of antibiotic only in patients with positive microbiological analyzes.

**Keywords:** Acute pharyngitis, infection, viruses, bacterial, microbiological analyzes.

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### Introduction

Pharyngitis is inflammation of the pharynx—the back of the throat. This can cause a sore throat, as well as scratchiness in the throat and difficulty swallowing.

According to the University of Maryland Medical Center, pharyngitis is one of the most common reasons for doctor visits (UMM, 2011). More cases of pharyngitis occur during the colder months of the year.

What are causes of sore throats:

- Infectious - viral, bacterial, mycoplasma, chlamydiae, candida
- Allergic - allergic rhinitis
- Acid Reflux - GERD
- Trauma – e.g., swallowing a chicken bone
- Chemical irritants or burns
- Epiglottitis
- Thyroiditis
- Retropharyngeal abscess

### Definitions

- **Pharyngitis** - predominantly inflammation of the oropharynx, but not the tonsils.
- **Tonsillitis** - when the tonsils are particularly affected.
- **Laryngitis** - few signs of infection visible but the patient complains of soreness lower down the throat often with a hoarse voice.

### Etiology

- 30%-65%: idiopathic
- 30%-60%: viral
- 5%-10%: bacterial
- **Group A beta-hemolytic: most common bacterial pathogen**
  - 15%-36%: pediatric cases
  - 5%-10% : adult pharyngitis
  - Disease of children

### Strep throat

Strep throat is caused by Group A *Streptococcus* bacteria. It is the most common bacterial infection of the throat Streptococcal pharyngitis, streptococcal tonsillitis, or streptococcal sore throat (known colloquially as strep throat) is a type of pharyngitis caused by a group A streptococcal infection It affects the pharynx including the tonsils and possibly the larynx. Common symptoms include fever, sore throat, and enlarged lymph nodes. It is the cause of 37% of sore throats among children.

Which factors lead to the spread of GAS pharyngitis?

- Droplets,
- Not Fomites,
- Overcrowding,
- Possibly families with young children,
- Proven family contacts,
- and the effects of poverty

Which clinical signs and symptoms best correlate with group A streptococcal (GAS) pharyngitis infection

in adults and children:

1. Temperature > 38 C
2. Sudden onset
3. Coryza
4. Diarrhoea
5. Macular rash

6. Age 3 -14 yrs
7. Conjunctivitis
8. Early winter or spring presentation
9. Exudate on tonsils
10. History of exposure to GAS
11. Palpable cervical lymph nodes
12. Cough
13. Myalgia
14. Prolonged sore throat
15. Fatigue
16. No cough
17. Sandpaper-like rash
18. Nausea
19. Loss of appetite

Differential diagnosis

- **Infectious mononucleosis** (glandular fever)
- **Epiglottitis** (requires urgent admission)
- **Gonococcal pharyngitis** (rare)
- **Diphtheria** (very rare in developed countries )

*Tab.1.Infectious Causes of Pharyngitis*

Cause	Adults
<b>Viral (including mononucleosis)</b>	30-60%
<b>Group A Streptococcus</b>	5-9%
<b>Group C, G, or F Streptococcus</b>	0-18%
<b>N. gonorrhoeae</b>	0-25%
<b>Mycoplasma</b>	10-13%
<b>Chlamydia</b>	9-20%

*Streptococcus group a infections can be self limiting*

- Group A strep pharyngitis naturally self-limiting
- Resolve spontaneously in 3-4 days w/ or w/o antibiotics

- Rapid test or throat culture: reduces unnecessary antibiotic use by identifying those whom antibiotic therapy is justified
- Viral etiology do not need antibiotic treatment

### ***Complications of streptococcal infection***

- Otitis media
- Sinusitis
- Peritonsillar abscess (quinsy)
- Suppurative cervical adenopathy
- Rheumatic fever
- Post streptococcal glomerulonephritis

### ***Management***

- If an antibiotic is necessary
  - **Penicillin is the treatment of choice, with erythromycin in patients with penicillin allergy. 10 days treatment is recommended in order to eradicate possible streptococcus infection**
- Tonsillectomy is occasionally recommended for recurrent attacks of tonsillitis. Consider only if seven documented throat infections in the preceding year, or three in each of three successive years.

### **Material and Method**

In examined patients have become common these controls to detect pharyngitis:

#### *Physical Exam*

If the patients are experiencing symptoms of pharyngitis, we will look at throat, will check for any white patches, swelling, and redness. We may also look in ears and nose. To check for swollen lymph nodes and will feel the sides of the patients neck.

#### *Throat Culture*

If we suspects that our patients including in this research have strep throat, we will take a throat culture. This involves using a swab to take a sample of the secretions from patients throat. This test will tell us within a few minutes if the test is positive for streptococcus or strep bacteria.

#### *Blood Tests*

If we suspects another cause of your pharyngitis, may order blood work. This will involve drawing a small sample of blood from arm or hand and sending it to a lab for testing.

A simple blood test can determine whether you have mononucleosis.

A complete blood count (CBC) test may be done to determine if you have another type of infection.

There are numerous viral and bacterial agents that can cause pharyngitis. They include:

- measles

- chickenpox
- croup (a childhood illness distinguished by a barking cough)
- whooping cough

All samples taken from patients involved in the research will be processed the following.

## Results

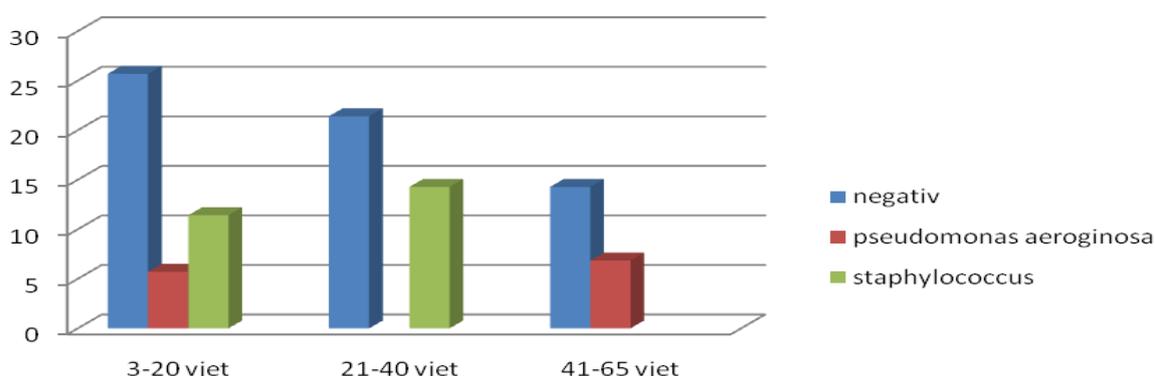
In this study are analysed total of 143 patients, where 73 are males and 70 of them are females .

The age distribution is from 3 year the youngest to 65 year old the oldest. The microbiology laboratory plays a very important role in the diagnosis and management of patients with pharyngitis. Specimen collection from throat swab, posterior pharyngeal swab, nasopharyngeal swab, pharyngeal washings, pus aspirate, oropharyngeal swab, throat gargle.

In table below shows the results of positive or negative patients in various age groups ratings bacterial or viral agents.

**Tab.2. Increased results in examined patients**

Female (70)	Number of patients	Brisk of throat negativ	Brisk of throat positive	Kind of bacteria
3 – 20 Y	30	18	12	Pseudomonas sp (4)
				Staphylococcus (8)
21 – 40 Y	25	15	10	Staphylococcus (10)
41 – 65 Y	15	10	5	Pseudomonas
				Aeruginosa (5)



**Fig.1. Graphical presentation of patients that are negative and positive in the presence of Pseudomonas aeruginosa and staphylococcus in various age groups.**

Patients involved in the following research are divided by gender (Tab.3.) and notice that the women are attacked by Pharyngitis 57.14 % of them more than males with 42.86%.

**Tab.3. Shown in percentage of men and women affected by Pharyngitis**

Pharyngitis	Female	Male
	57.14 %	42.86 %

### Conclusion

From the total number of female patients, 43 of them were negative in the throat swab culture, while only 27 of them or 38,57 % were positive.

Etiologic distribution in positive culture is 9 or 12.85% positive for pseudomonas, 18 or 25.71% positive for GAS.

In male patients we see from the total number only 49 67.13% were negative, while 24 or 32.87% resulted positive. From the total number of positive test only 8 or 10.95% of them was discovered pseudomonas, while 16 or 21.9% positive for staphylococcus.

Most cases, whether viral or bacterial, are relatively benign and self-limited. Management of GAS infection, when indicated, includes the following conclusions :

- Do not treat patients without a positive culture or positive rapid antigen detection test result;
- Perform a rapid antigen detection test if GAS is clinically suspected on the basis of the history and physical examination; if test results are positive, begin antibiotic therapy;
- Patients who are positive for all 4 Centor criteria can often be treated with antibiotics without antigen testing or cultures;
- Household contacts of patients with GAS infection or scarlet fever should be treated for a full 10 days of antibiotics without testing only if they have symptoms consistent with GAS; asymptomatic contacts should not be treated;
- If the diagnosis is in doubt or the above criteria are not met, initiation of antibiotic therapy should await rapid antigen test or culture results.

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