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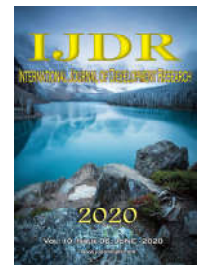
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RESEARCH ARTICLE

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MANAGEMENT OF RETRO-PHARYNGEAL ABSCESES IN AN ENT DEPARTMENT IN DAKAR (SENEGAL)

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ABSTRACT

Introduction: Retro-pharyngeal abscesses (RPA) refer to purulent collections in the retro-pharyngeal zone [1-2]. It is an infectious and respiratory ENT emergency, mainly found during early childhood. We illustrate through this study the diagnostic and therapeutic peculiarities of RPA in a developing country. **Materials and methods:** This is a retrospective study conducted at the Lamine Sine Diop ENT Clinic at FANN teaching hospital in Dakar. It included 17 children aged from 0 to 16 years hospitalized for the management of RPA. A total of 17 patients were collected during a 7-year-period range from January 2013 to December 2019. **Results:** The mean age was 20 months and the sex ratio 3.2. Supra-laryngeal dyspnea was the revealing symptom in 76%. Bulging of the oropharynx posterior wall was found in 76% of cases and cervical swelling was noted in 47% of the series. Nine (09) cases of fever were noted. A profile X-ray of the nasopharynx allowed to set the diagnosis in 70% of the cases. The treatment consisted of surgical drainage under general or local anesthesia by endo-buccal route combined with antibiotic treatment. The collections were located in the posterior wall of the oropharynx in 15 cases and in 2 cases in the posterior wall of the hypopharynx. The follow-up were simple in 76% of the cases with an average hospital stay length of 07 days. **Conclusion:** The retro-pharyngeal abscess is a fairly common complication of rhinopharyngitis in pediatric ENT. It exceptionally occurs in adults. The diagnosis is made in our context on the basis of febrile respiratory obstruction due to the late consultation. Standard radiography is useful in the absence of a CT scan to initiate emergency treatment based on surgical drainage combined with antibiotic therapy.

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INTRODUCTION

Retro-pharyngeal abscesses (RPA) refer to purulent collections in the retro-pharyngeal zone [1-2]. It is an infectious and respiratory ENT emergency, mainly found during early childhood. They result from a spread of an upper respiratory tract infection in the retropharyngeal ganglia. The diagnosis is clinical and will be carried out of a child with a febrile torticollis associated with dyspnea and the presence of a bulge in the posterior wall of the pharynx on physical examination [23]. The treatment combines broad-spectrum antibiotic therapy and surgical drainage.

The aim of this paperwork is to report the epidemiological, clinical, therapeutic and evolutionary aspects of RPA in a pediatric population occurring in a sub-Saharan developing country.

PATIENTS AND METHODS

We conducted a backward study in Lamine Sine Diop ENT Clinic at FANN Teaching Hospital in Dakar, Senegal. It involved 17 children aged from 0 to 16 years hospitalized for RPA, collected in a 7-year-period range from January 2013 to December 2019. We have excluded all incomplete files. The

studied parameters featured: age, sex, time of consultation, reasons for consultation, complementary examinations, therapeutic approach, and the outcome. All patients were received in the emergency care unit and a profile cervical X-ray was systematically performed on admission. Surgical drainage was performed under general anaesthesia. The approach consisted of an abscess incision either under general anaesthesia with orotracheal intubation or under general anaesthesia with face mask, or an urgent incision without anaesthesia followed by a rapid pus aspiration. A probabilistic antibiotic therapy was instituted postoperatively while waiting for bacteriology findings.

RESULTS

Epidemiological data: Our series consisted of 04 girls and 13 boys. The mean age at diagnosis was 20 months (04 months 14 years). Eighty-eight percent (88%) of the patients were less than 24 months old. Recurrent nasopharyngitis was outlined in 9 cases accounting for 52%.

Clinical and paraclinical data: The mean time of the disease progression before patients' management was 25 days. Fifty-two percent of the patients, corresponding to 09 cases, consulted within 7 days of the onset of symptoms. The symptoms observed are shown in Table I.

Table I.

Symptoms	Amount	Percentage
Supra-laryngeal dyspnea	13	76%
Neck tumefaction	8	47%
Refusal to suck	2	11%
Torticollis	2	11%

On physical examination: A bulge in the posterior wall of the oropharynx was noted in 13 cases, cervical swelling in 08 cases and fever in 09 cases. A wheelchair needle puncture was performed in 06 patients. Laboratory investigations outlined a biological inflammatory syndrome in 08 cases with a mean C-reactive protein rate of 42 mg/L. Bacteriological examination was carried out in 4 cases and had allowed the isolation of *Staphylococcus aureus* in 03 cases, sensitive to oxacillin while the culture was negative in 1 case. A profile radiography of the nasopharynx was performed in 12 cases and confirmed the diagnosis by showing an enlargement of the retropharyngeal area and a narrowing of the respiratory tract (Figure 1).



Figure 1. Standard radiograph of the neck in profile: convexity of the posterior wall of the oropharynx (arrow)

No foreign bodies were revealed. The cervical CT-scan was carried out in 03 cases and lent support to outline a retro-pharyngeal collection of 25 millimeters, 40 millimeters and 55 millimeters respectively (Figure 2 and 3).

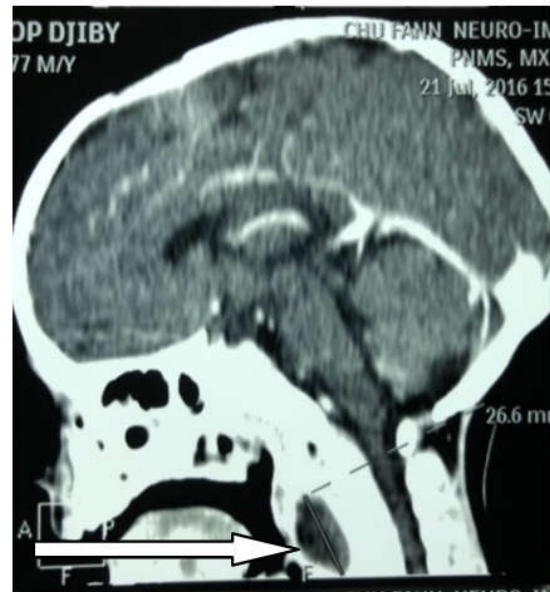


Figure 2. Cervical CT scan in sagittal sections shows hypodense retropharyngeal formation with peripheral enhancement after injection of contrast agent measuring 40 millimeters (arrow)

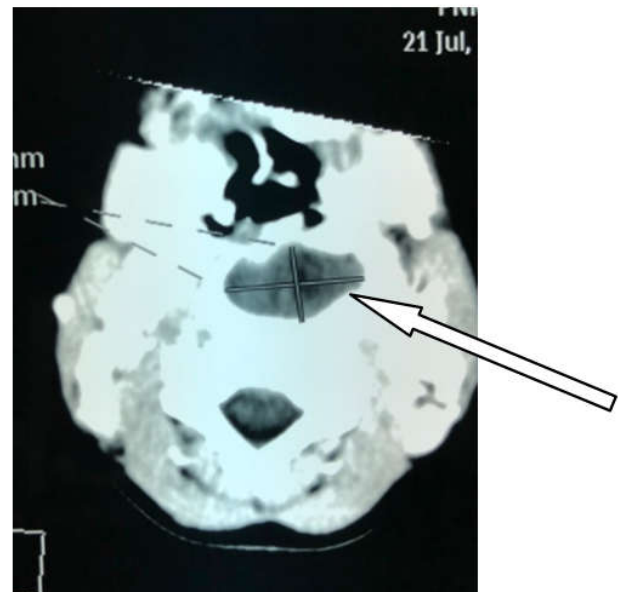


Figure 3. Cervical CT scan axial sections shows hypodense retropharyngeal formation with peripheral enhancement after injection of contrast agent measuring 40 millimeters (arrow)

Therapeutic data: All patients underwent surgical drainage and parenteral antibiotic therapy. Corticosteroid therapy was performed in 09 patients. Surgical drainage was performed in all patients by the endobuccal route. In 02 cases the abscess was approached through external route due to the presence of adenophlegmon. A general anaesthesia in corporation with orotracheal intubation was performed in 09 cases. The procedure consisted of an incision of the abscess under general anaesthesia with a face mask in 05 cases, while in 03 cases we performed an urgent incision without anaesthesia or intubation with immobilization of the child rolled up in a field. Rapid pus

aspiration was performed in a lateral safety position. The collections were located at the posterior wall of the oropharynx in 15 cases and in 02 cases at the posterior wall of the hypopharynx. The average volume of pus was estimated at around 20 milliliters.

Evolutionary data: The post-operative follow-up was simple in 13 cases. In 4 cases we observed complications featuring laryngeal dyspnea, bleeding, recollection and septicaemia. The medium-term evolution was favourable in all patients, with an average hospital stay of 07 days. Neither recurrent case nor death was reported. Only one patient underwent adenoidectomy 1 month later.

DISCUSSION

RPAs are generally seen in the pediatric population but occur in adults as well. Children, especially from 09 months to 03 years of age, are the primary target because of the narrow airways and susceptibility to ENT infections such as adenitis, tonsillitis, and otitis [3]. It is a medical-surgical emergency that can be life-threatening through high respiratory obstruction or diffusion of mediastinitis [27]. They remain an uncommon condition as our study shows (17 cases in 07 years). In our context marked by under-medicalization, the frequency is difficult to assess, it is possible that some patients with RPA do not reach the level of reference structures, or that there is a phenomenon of under-diagnosis of cases [27]. On the other hand, several authors agree with a high frequency of RPA in recent years but the reason is unknown [4,5]. RPA mostly occurs in male infants. This male predominance was found by Cowan [2] and Craig [18], as in our series where it is 3.2. Marques [28] found a mean age of 3 years, 50% of whom were less than 2 years old, which confirm our results. The retropharyngeal area is the site of lymphoid formations that regress around the age of 07 years. It is bounded in front by the posterior wall of the pharynx, oesophagus and trachea, at the back by the prevertebral fascia and laterally by Charpy's blades, carotid sheaths and parapharyngeal spaces. It continues downwards through the retrovisceral space and then into the upper mediastinum to the tracheal bifurcation [6]. These reports explain the occurrence of possible complications such as diffusion of the abscess to the parapharyngeal regions, bronchial flooding by rupture of the abscess, and mediastinitis. In children it is rather a complication of rhinopharyngitis than angina, the suppuration of these lymphoid formations first goes through a stage of adenitis and then adenophlegmon [11]. RPA can occur by 3 mechanisms: by direct inoculation of a germ into the retropharyngeal area, by the introduction of a foreign body leading to superinfection, or by iatrogenicity during intubation for oral cavity surgery or by insertion of a feeding tube [2].

The clinical presentation is similar in all series. In children it is dominated by supra-laryngeal dyspnea, cervical swelling and febrile dysphagia [1, 2,7]. In our series it mainly featured dyspnea and febrile cervical swelling. In adults the pharyngeal discomfort, dysphagia and the absence of dyspnea are more characteristic, it will be necessary to look for a pre-existing immunodepression condition (HIV, Diabetes) [8]. Under a good lighting, the physical examination reveals a characteristic bulge in the posterior wall as highlighted in 13 of our observations because the abscess is often oropharyngeal. This bulging is present in less than 50% of the literature [11, 26]. It should be emphasized that this examination must be performed

gently and tactfully to avoid a respiratory accident, since it is difficult for a sick child to allow the oral cavity to be examined [8]. The duration of symptom evolution, which is 25 days in our study, is shorter than that found in the study by Daya[9], Galia[10] and Federici [11] explaining the low percentage of dyspneic patients with 7%, 5% and 3% respectively. Therefore, RPA cases in our series seem to be the preserve of patients with a low socio-economic level with a consultation delay. The diagnosis of retropharyngeal abscess is generally easy. Nevertheless, epiglottitis, laryngeal foreign body, cervical pottic abscess or their associations can be discussed [13, 14]. In our series no cases of foreign body or cold abscess have been found. According to a radiological approach, the standard cervical profile radiograph is of great importance in order to outline a thickening of the posterior pharyngeal wall by increasing the distance between the posterior pharyngeal wall and the 2nd vertebral body superior to 7mm. If the measurement is made at 6th vertebral body, this width should be 14 millimeters in children under 15 years of age and 22 millimeters in adults [2]. It has also been useful in diagnosing RPA in several series [1, 2, 11]. In the study reported by Fédéreci[11], it was performed in all patients. Nowadays it is less used with the progress of the scan. As far as CT scan is concerned, the results are better but it is difficult to perform it in emergency condition. The reason is that most patients consult at the stage when major dyspnea and an infectious syndrome have set in due to a large abscess preventing its emergency performance. In addition to this, there are also other issues related to means and accessibility of the scan at certain times. The sensitivity of the CT scan to detect an RPA is about 90% and the specificity 60% [10]. Thus, we believe that the clinical presentation in corporation with standard radiography allow us to make a therapeutic decision. The bacteriological examination of the pus, which should be systematic, allows us to isolate a germ and test its sensitivity to the different antibiotics. The most common germs encountered are staphylococcus, streptococcus, Haemophilus influenzae, but also anaerobic germs [3].

Group A streptococcus was the only germ isolated in the paperwork reported by Marques [28] while Craig [18] found mostly streptococcus and staphylococcus aureus. Anaerobes and Gram-negative bacilli have a higher risk of complications according to Craig [18]. In our study 04 bacteriological results were obtained; this can be explained by the fact that the bacteriological laboratory was not working full time, especially during on-call hours. In therapeutic approach, endobuccal surgical drainage has always been the classic treatment for RPA. However, due to improvements in antibiotic therapy, the optimal treatment is now a matter of debate [15]. Some authors such as Daya, Plaza and Sichel[9, 16, 17] report success with exclusive antibiotic treatment while others such as Kirse, Craig and Courtney [4, 18, 25] continue to recommend surgical treatment. In our series, the frequency of severe signs such as sepsis and supra laryngeal dyspnea explains the rapid implementation of surgical treatment, mainly intra oral. The incision-drainage can be carried without general anaesthesia in the non-intubated child who is securely immobilized with a field by the operating aid in the chair or on the operating table. The abscess is opened with a LUBET-BARBON forceps or an American scalpel; the child is immediately positioned upside down or sideways to suck out the pus [3].

This procedure was performed in 05 cases in our study under general anaesthesia with a mask and urgently in 03 cases. The endobuccal route remains the most commonly used by many authors of large paediatric series, allowing them to drain 73 to 94% of RPA cases [19, 20]. The combined route is reserved for difficult cases that often extend to the aponeurotic zones [2]. On the other hand, some authors use the external route in 65 to 88% of cases [21]; but it should be noted that these series involved all age groups, including adults, and are therefore difficult to compare with paediatric series. Drainage can be performed through endoscopy in the case of a low situated abscess. We noted 02 cases of hypo-pharyngeal abscess in our series. Some authors advocate general anaesthesia with cautious intubation but the abscess may rupture during intubation attempts. Some authors suggest a tracheotomy or nasofibroscope intubation which is not always available in our context [2]. If access to the operating theatre is difficult or if there is a life-threatening airway obstruction, a tracheotomy can be performed [21]. In our series 1 patient presented with post-operative laryngeal dyspnea managed by tracheotomy and another patient was seen with a major dyspnea that indicated an intubation tracheotomy. In addition to surgical treatment, antibiotic therapy is systematic, it is probabilistic, administered according to the bacterial flora most frequently encountered in children's respiratory infections: staphylococcus, streptococcus, haemophilus or anaerobes; then adapted to the antibioticogram. In our study, the combination of amoxicillin and clavulanic acid was used in all our patients as first-line treatment, combined with metronidazole or gentamycin. This is similar to Fédérici series [11]. In Ouoba series [3], only the combination of amoxicillin and clavulanic acid was used.

Others authors recommend the combination Ampicillin + Sulbactam [4,]. The French Society of ENT recommends antibiotic therapy in case of abscess inferior to 15millimeters on CT scan and drainage under general anaesthesia with cautious intubation if the clinical course persists after 72 hours [11]. Our advice is to perform drainage under general anaesthesia combined with antibiotic therapy. The treatment of RPA is therefore both medical and surgical. As for corticosteroids, their efficacy is not justified, as the authors who have used them have not specified any benefit or morbidity [9]. Others prefer to avoid them but without any reason that could explain it [5]. In our series it was indicated on the basis of respiratory obstruction. The evolution is generally unremarkable, with an average hospital stay of 7 days, the time needed for good therapeutic compliance and for the availability of bacteriological results. But the evolution can be fraught with rare but dreadful complications, notably spontaneous rupture during sudden manoeuvres with the risk of tracheo-bronchial flooding, because the abscess hangs over the larynx like a "ripe mango"; respiratory distress due to obstruction, inhalation pneumopathy, mediastinal extension, internal jugular vein thrombophlebitis, erosion of the internal carotid artery, epiduritis [12, 18, 22]. The low mortality rate of about 1-2% is found in several recent publications [1, 5, 23, 24]. In our series, no death was recorded. Adenoidectomy is indicated later, but only 1 patient benefited from it in our study.

Conclusion: Retropharyngeal abscess is a fairly common complication of rhinopharyngitis in children. Diagnosis remains easy, based on clinical and imaging studies. Management must be multidisciplinary, involving ENT and paediatricians. The treatment is medical-surgical. But in our

context, the realization of a surgical drainage from the outset is safer for cases that consult at the stage of febrile respiratory obstruction. The undertaking of looking-forward studies would be helpful to outline the predictive factors for surgical treatment.

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