

JUVENILE RECURRENT PAROTIDITIS: REPORT OF FOUR NEW CASES

PAROTIDITE RECURRENTE JUVENILE : A PROPOS DE QUATRE NOUVEAUX CAS

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ABSTRACT

Introduction: Juvenile recurrent parotiditis is a rare condition in childhood with unknown etiology. The aim of the present study is to review symptomatology, diagnosis and management of this disease.

Patients and methods: Retrospective study of children diagnosed with juvenile recurrent parotiditis in our department between 2010 and 2015.

Results: Four cases (2 girls and 2 boys) were collected. The age at onset ranged from 18 months to 3 years. The commonest symptoms were swelling, pain and fever. Symptoms lasted 3 to 5 days. The diagnosis was established by demonstrating sialectasis on magnetic resonance imaging sialography in 3 cases and on histological analysis of parotid gland biopsy in one case. The frequency of episodes ranged from 1 to 9 times per year and improved with time in all cases.

Conclusion: Physicians must recognize warning signs and differentiate between this disease and other mimicking entities.

Key words: Children; parotid gland; recurrent parotitis; sialectasis

RESUME

Introduction: La parotidite récurrente juvénile est une affection rare du jeune enfant d'étiologie inconnue. Le but de la présente étude est d'étudier les modalités diagnostiques et thérapeutiques de cette maladie.

Patients et méthodes : il s'agit d'une étude rétrospective colligeant tous les enfants atteints de parotidite récurrente juvénile diagnostiqués entre 2010 et 2015.

Résultats : Quatre cas (2 filles et 2 garçons) ont été colligés. L'âge de début de la symptomatologie variait de 18 mois à 3 ans. Les symptômes les plus courants ont été la tuméfaction de la loge parotidienne, la douleur et la fièvre avec une résolution au bout de 3 à 5 jours. Une sialectasie de la glande a été retrouvée dans la sialo-IRM dans 3 cas et à l'étude histologique d'une biopsie parotidienne dans un cas permettant ainsi de retenir le diagnostic. La fréquence des épisodes variait de 1 à 9 fois par an avec une tendance à la diminution des poussées avec le temps dans tous les cas.

Conclusion : Les cliniciens doivent reconnaître les symptômes de cette pathologie rare pour établir le diagnostic adéquat et adapter la prise en charge.

Mots clés : enfant ; glande parotide ; parotidite récurrente ; sialectasie

ملخص:

مقدمة: التهاب الغدة النكفية المتكرر عند الطفل الصغير نادر و سببه غير معروف. الغرض من هذه الدراسة هو التعرف على طرق التشخيص والعلاج من هذا المرض.

المرضى والطرق: دراسة استيعابية لجميع الأطفال الذين يعانون من التهاب الغدة النكفية المتكرر بين عامي 2010 و 2015. النتائج: أربع حالات (2 ذكور و 2 إناث) تم جمعها. تراوح سن ظهور الأعراض من 18 أشهر إلى 3 سنوات. الأعراض الأكثر شيوعاً هي تورم للغدة النكفية والألم والحمى مع إنفراج بعد 3 إلى 5 أيام. تم التشخيص بالرنين المغناطيسي في 3 حالات ودراسة نسيجية للخزعة النكفية في حالة واحدة وبالتالي الإبقاء على التشخيص. تراوح تواتر النوبات من 1 إلى 9 مرات في السنة مع إنخفاض عدد النوبات مع مرور الوقت في جميع الحالات.

الخلاصة: ينبغي على الأطباء التعرف على أعراض هذه الحالة النادرة لتأسيس التشخيص السليم وضبط العلاج.

الكلمات المفتاحية: الطفل؛ الغدة النكفية. التهاب الغدة النكفية المتكرر

INTRODUCTION

Juvenile recurrent parotiditis (JRP) is defined as repeated episodes of parotid inflammation, generally associated with non-obstructive sialiectasis of the parotid gland [1-3]. The etiologic mechanism is not understood and remains an enigma [4,5]. The diagnosis of JRP is based on clinical history of recurrent parotid swelling with demonstration of sialiectasis [2,3]. The frequency of recurrences has a marked tendency to regress with time. Remission occurs at the time of puberty [1-3]. The aim of the present study, which report 4 cases of JRP, is to illustrate symptomatology, to describe the magnetic resonance imaging (MRI) sialographic findings and to clarify the management of JRP.

PATIENTS AND METHODS

Between 2010 and 2015, we investigated 4 children for recurrent parotitis and found typical sialiectasis in parotid gland on MRI sialography or parotid biopsy. The diagnosis of JRP was established. We performed complete laboratory investigations for all our patients which included blood count, inflammatory protein, human immunodeficiency virus (HIV) serology and serum immunoglobulin levels. Screening for autoimmune markers including antinuclear antibody (AAN), anti-SSA antibody and anti-SSB antibody was done. All patients underwent MRI sialography and bilateral parotid gland ultrasonography. The parotid biopsy was performed in only one patient.

RESULTS

Four cases (2 girls and 2 boys) were collected. The age at onset ranged from 18 months to 3 years. The commonest symptoms were swelling (4 cases), pain (2 cases) and fever (1 case). Symptoms usually lasted 3 to 5 days. The number of recurrences ranges from 1 to 9 times per year. MRI sialography showed sialiectasis in 3 cases. In one case, MRI sialography revealed swelling of the left parotid gland which was hyperintense on T2-weighted images without sialiectasis which was demonstrated on parotid gland biopsy. All patients were treated conservatively. A follow up was 2 to 3 years with gradual subsiding of symptom as they grow older. Characteristics and clinical progression of our cases are summarized at table 1.

Case n°1:

The patient was a 2-year-old boy who had 3 episodes of recurrent right sided facial swelling since 18 months of age. There was no family history of recurrent parotid swelling. He was admitted for the same symptomatology (figure 1). Physical examinations showed a 3 cm firm painful swelling of the right parotid gland with increased sub-mandibular lymph nodes. The patient blood count, erythrocyte sedimentation rate and serum immunoglobulin levels were in normal limits. HIV serology was negative. Antibodies including AAN, anti-SSA and anti-SSB autoantibodies were not detected. Ultrasonographic evaluation showed hypertrophic heterogeneous right parotid with lymphadenopathy. MRI sialography showed an important tumefaction of the right parotid gland with a discreet ectasis of the excretory canal without endo-luminal obstacle.

The patient was treated with analgesics, anti-inflammatory drugs (mefenamic acid) and empirical antibiotic (amoxicillin-clavulanic acid). The swelling resolved within 5 days. On examination between episodes, there wasn't parotid swelling. The diagnosis of JRP was made. He was followed up for 3 years. He had five other episodes during the first year. In some episodes, the patient received low dose corticoid (5 mg per day) with gradual tapering.

Case n°2

A 3-year-old girl was admitted for an acute swelling of the right parotid gland without fever. The initial episode had occurred 6 months before the admission. She had two uncles who suffered from JRP since the age of 3 years and were treated by anti-inflammatory drugs. On exam at admission, the right parotid swelling was firm and non-tender without local inflammatory signs. She had multiple cervical lymph nodes. There was no sign of xerophthalmia and xerostomia. The serum IgG, IgM and IgA levels were normal. HIV serology was negative. Autoimmune antibodies were not detected. The parotid sonogram demonstrated a right hypertrophic micronodular parotid gland with hypoechoic areas suggesting sialiectasis and hypervascularised at Doppler examination. MRI sialography showed hypertrophy of both parotids glands; clearly more marked to the right; which takes a micronodular aspect with multiple small

hurts hyper intense in T2 and a discreet canalicular ectasis (figure 2).

A diagnosis of JRP was made and the patient was treated by anti-inflammatory. This girl has been followed up for 3 years. She had 4 other episodes during the same years with moderately enlarged residual parotid between episodes. She was treated by short term steroids therapy with low dose (10 mg per day during one week followed by gradual tapering). The number of episodes has decreased during the second year at 2 without parotid swelling between episodes.

Case n° 3:

A 4-year-old boy had a history of 2 episodes of recurrent swellings of his left parotid gland beginning at the age of 3 years. His mother had JRP since she was 9 and she suffered from 5 episodes of recurrent parotid swelling. His aunt (mother of case n°4) had JRP since she was 13 with 3-4 episodes of recurrent parotid swelling per year and she had a total parotidectomy at the age of 24 years due to repeated infection and fistulation.

He was presented with an acute swelling of the left parotid gland which was firm and painful. He was febrile. Laboratory investigations were normal with absence of detectable autoimmune antibodies and negativity of HIV serology. Ultrasonography evaluation of the parotid gland showed heterogeneous echogenicity with hypoechoic areas suggesting sialectasis (figure 3).

MRI sialography demonstrated an important tumefaction of the left gland parotid with a multiple hyperintense areas on T2-weighted and multiple bilateral cervical lymphadenopathy, but there was no sign of ectasis. Histological analysis of parotid gland biopsy showed intraductal cyst-like dilation (arrow) with interlobular fibrosis and periductal lymphocytic infiltration (figure 4). A diagnosis of JRP was made.

There was complete resolution of the swelling 5 days after the prescription of an anti-inflammatory treatment. He was followed up for 3 years and had three other episodes during the first year followed by 2 episodes the second year and one episode the third year.

Case n°4:

A 3-year-old girl with a year's history of 2 episodes of left parotid gland swelling was admitted to our department complaining of painful swelling of left

parotid gland. She is the cousin of case n°3. The mothers of case 3 and 4 are sisters and have presented JRP.

She was presented with an acute swelling of the left parotid gland which was firm and painful. The patient blood count, erythrocyte sedimentation rate and serum immunoglobulin levels were in normal limits. Diagnostic Sjogren's syndrome serology and HIV serology were ordered. All results were negatives. Ultrasonography showed heterogeneous texture in left parotid gland with multiple small hypoechoic areas. MRI sialography demonstrated an important tumefaction of the left gland parotid with a hypersignal in T2-weighted and sign of ectasis with lymphadenopathy. A diagnosis of JRP was established.

There was complete resolution of the swelling 3 days after the prescription of an anti-inflammatory treatment. The frequency of episodes improved with one recurrence per year.



Fig 1: Clinical photograph of a 2-year-old boy with juvenile recurrent parotitis of his right parotid gland (arrow)

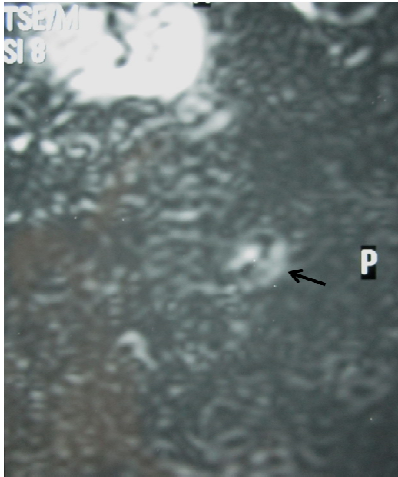


Fig 2: MRI-sialography (T2-weighted axial view) of parotid gland with juvenile recurrent parotitis demonstrates sialectasis (arrow)

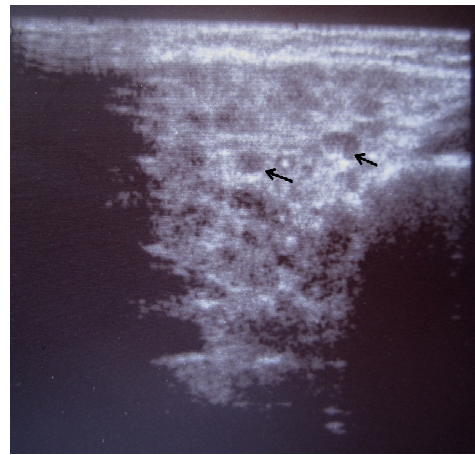


Fig 3: Ultrasonogram of the left parotid gland with juvenile recurrent parotitis shows enlarged gland with heterogeneous echogenicity with hypochoic areas suggesting sialectasis (arrow)

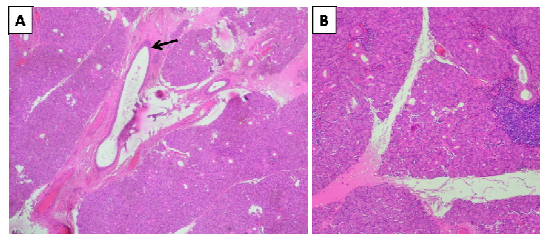


Fig 4: Histological analysis of parotid gland biopsy: (A) Intraductal cyst-like dilation (arrow) with interlobular fibrosis. (B) Periductal lymphocytic infiltration.

Table 1: Characteristics and clinical progression of patients with juvenile recurrent parotitis.

cases	Age of first presentation (years)	Age at onset (years)	Duration of follow up (years)	Total number of recurrences	Number of recurrences in first year	Number of recurrences in second year	Number of recurrences in third year
Case 1	2	1,5	3	13	9	2	2
Case 2	3	2,5	3	10	6	2	2
Case 3	4	3	3	9	6	2	1
Case 4	3	3	2	5	3	1	1

DISCUSSION

Juvenile recurrent parotitis is an infrequently occurring salivary gland inflammatory disease [1-3]. Incidence is unknown. Only small series or case report has been reported [2,3,6-9]. The etiopathogenesis remains obscure and may be multifactorial [4,5]. The main principal factor is a predisposition to ductal infection ascending from the mouth with stasis of saliva. Other etiologic factors have been proposed including ductal congenital malformation [4], allergy and autoimmunity [2]. Some cases have been reported with a correlation between JRP and immunodeficiency such as common variable immunodeficiency [3,10] and selective Ig A deficiency [8,11].

Genetic factors have also been suggested to have a role [5]. JRP may be familial with autosomal dominant inheritance. In our study cases, there's positive family history in 3 cases: there was a history of JRP in mothers of cases 3 and 4 and uncles of case 2.

The age of onset of JRP is most commonly ranged from 3 and 6 years [1-3,6-9]. Earlier ages of onset have been reported [2] like on case 1. Leerdam et al [3] have reported a biphasic age distribution with peaks at 2 to 5 years of age and at 10 years. In our cases, the age at onset was 18 months to 3 years. The disease involves males more often than females [1,3,8]. Characteristically, both parotid salivary glands are involved even if the subjective symptomatology is initially apparent on only one side [1]. Subsequent episodes can alternately implicate the opposite side, and at times the exacerbation can simultaneously involve both parotids [1]. Recurrences are common, with episodes tending to occur 1 to 5 times each year [1-3,6-9]. Some other authors have reported more than 20 attacks per year [2]. Each episode lasts approximately 3 to 7 days and tends to subside with or without treatment [1-3,6-9]. In our cases, symptoms usually lasted 3 to 5 days. The frequency of crises improved with time in all cases. On exacerbations, the common clinical manifestation reported was swelling (100%) [3,6], pain (92.5 to 100 %) [3,6] and fever (41.5 to 75%) [3,6]. In our study, the commonest symptoms were swelling (all cases), pain (2 cases) and fever (1 case). Between episodes, the exam was typically normal without parotid swelling [1-3,6-8].

The confirmation of a diagnosis of JRP needs imaging demonstration of sialectasis of the affected parotid gland [12]. Many investigative tools have been used for the diagnosis of JRP (conventional sialography, ultrasound, MR sialography and sialoendoscopy). Bilateral parotid gland ultrasonography is the appropriate initial investigation. It revealed multiple hypoechoic areas corresponding to punctate sialectasis [7,12]. Therefore authors recommended ultrasonography as the primary investigation for diagnosis and follow up [3]. MR sialography is sensitive in detecting salivary duct abnormalities and replace completely conventional sialography [13]. The radiologic investigation of choice for demonstration sialectasis is MRI sialography. The MRI T2-weighted film highlights liquid structures [12]. Sialo-MRI is noninvasive, safe and shows both ductal and parenchymal systems with high sensitivity [12,13].

Sialoendoscopy is another possible method of diagnosis, where the main endoscopic findings would be a white appearance of the ductal layer without the healthy blood vessel coverage [14,15]. Sialectasis may be documented on parotid biopsy. The histologic findings include pseudocystic dilations of interlobular ducts, periductal lymphatic infiltration, interacinar fibrosis and many degrees of atrophy and fibrosis of acinar glands [1,14]. JRP must be distinguish from other diseases with parotid swelling: HIV infection [3,16], Mandibular osteomyelitis [17], lymphoma [10] and primary Sjogren's syndrome [18]. All our cases were being screened for Sjogren's syndrome and immune deficiency including HIV. We don't detect any evidence of autoimmunity and not found any infection agents.

The prognosis in JRP is generally favorable. The spontaneous remission occurs at adolescence [1,3,14]. However, continuation throughout adult life has been reported [1] as in the mother of case 4. Treatment is not yet standardized. It must be conservative because the frequency of crises showed trend to reduction of time [19]. Exacerbations can be managed by analgesics and anti-inflammatory agents. The use of antibiotics is controversial. For some authors, antibiotic treatment can be used when secondary infection develops. However, Leederman and al. [3], have found that antibiotic do not have a role in treatment.

Short-term steroids have been used in some cases with markedly reduction of parotid swelling [4,8].

Low dose of corticoid could be prescribed during the crises and could be maintained for a period of 4 to 6 weeks. It's used to reduce the gland inflammation and restore the normal blood exocrine gland permeability barriers [4,8].

Another modality of treatment consists of interventional sialoendoscopy. It is safe and effective method of treatment of JRP [20]. Nahlieli et al [14] used the combination of sialoendoscopy, ductal dilation and injection of hydrocortisone solution intraductally and reduced recurrence of the symptoms to only 8% of children. For Nahlieli et al [14], JRP treatment should start with sialoendoscopy with hydrocortisone injection. However, for others authors, this modality can be considered only for patients who fail conservative medical management [4,20]. Surgical approach with total parotidectomy is rarely used [1]. It gives permanent relief but with risk of facial nerve injury [1].

No effective preventive therapy of recurrence was available [1,14]. Maintaining good oral hygiene and preventing dehydration may helps [1].

CONCLUSION

Physicians must recognize warning signs of JRP in front of major clinical features. MRI sialography may be an effective tool for differentiating between JRP and other mimicking entities. Further prospective study must collect a large pediatric multicentric cohort to improve the understanding of pathogenesis manifestation of JRP and to assay immunosuppression therapy.

REFERENCES

- Chitre VV, Premchandra DJ. recurrent parotitis. Arch Dis Child 1997;77:359-63.
- Ericson S, Zetterlund B, Ohman J. Recurrent parotitis and sialectasis in childhood. Clinical, radiologic, immunologic, bacteriologic and histologic study. Ann Otol Rhinol Laryngol 1991 ;100: 527-35.
- Leerdam CM, Martin HC, Isaacs D. Recurrent parotitis of childhood. J Paediatr Child Health 2005;41:631-4.
- Baurmash HD. Chronic recurrent parotitis: a closer look at its origin, diagnosis, and management. J Oral Maxillofac Surg 2004;62:1010-1018.
- Kolho KL, Saarinen R, PAW A, et al. New insights into juvenile parotitis. Acta Paediatr 2005;94:1566-1570.
- Wang TC, Shyur SD, Kao YH, Huang LH. Juvenile recurrent parotitis. Acta Paediatr Taiwan 2006;47:297-302,.
- NW Li, WM Chan, YW Kwan, CW Leung. Recurrent Parotitis in Children. HK J Paediatr (New Series) 2011;16:36-40.
- Miziara, ID, Campelo VE. Infantile recurrent parotitis: follow up study of five cases and literature. Braz J Otorhinolaryngol 2005;71: 570-575.
- Bhattarai M, Wakode PT. Recurrent parotitis in children. J Indian assoc pediatr surg 2006; 11:246-247.
- Turul T, Türkkanı-Asal G, Sarac S, Sanal O. juvenile recurrent parotitis and immunodeficiency: report of 2 cases. Int J Pediatr Otorhinolaryngol Extra 2007;2:125-127.
- Fazekas T, Wiesbauer P, Schroth B, et al. Selective IgA deficiency in children with recurrent parotitis of childhood. Pediatr Infect Dis J 2005; 24:461-462.
- Mandel L. Imaging in a case of recurrent parotitis in children. J Oral Maxillofac Surg 2006; 64:984-988.
- Gadodia A, Seith A, Sharma R, Thakar A. MRI and MR sialography of juvenile recurrent parotitis. Pediatr Radiol 2010; 40:1405-10.
- Nahlieli O, Shacham R, Shlesiger M, Eliav E. Juvenile recurrent parotids: A new method of diagnosis and treatment. Pediatrics 2004;114:9-12.
- Quenin S, Plouin-Gaudon I, Marchal F, et al. Juvenile recurrent parotitis: sialendoscopic approach. Arch Otolaryngol Head Neck Surg 2008; 134:715-719.
- Dilu NJ, Giyulu N. Recurrent parotitis in children and HIV infection. A propos of 4 cases. Rev Stomatol Chir Maxillofac 1998; 99:40-3.
- Saarinen RT, Kolho KL, Kontio R. Mandibular osteomyelitis in children mimicking juvenile recurrent parotitis. Int J Pediatr Otorhinolaryngol 2011; 75:811-4.
- Oliaei S, Ahuja G. Primary Sjogren's syndrome presenting as a case of isolated recurrent unilateral parotitis in a 12 year old. Int J Pediatr Otorhinolaryngol Extra 2011; 6: 395-397.
- Schneider H, Koch M, Künzel J, et al. Juvenile recurrent parotitis: A retrospective comparison of sialendoscopy versus conservative therapy. Laryngoscope 2014;124:451-5
- Capaccio P, Sigismund PE, Luca N, et al. Modern management of juvenile recurrent parotitis. J Laryngol Otol 2012; 126:1254-60.