Upper Gastrointestinal Tract Endoscopy and Duodenum Bıopsy for the Diagnosis of Renal Involvement of Amyloidosis

Mürvet Yılmaz, Abdulkadir Ünsal, Mehmet Sökmen, Özlem Harmankaya, Canan Alkım, Fevziye Kabukçuoğlu, Emine Aycan,
Departments of Nephrology and Gastroenterology and Pathology, Şisli Etfal Training and Research Hospital, İstanbul

Introduction

Systemic amyloidosis is a disease characterized by deposition of amyloid protein in various tissues or organs. Renal involvement is a severe complication of amyloidosis. Definite diagnosis of renal amyloidosis requires determining of amyloid deposition in renal tissue. In patients whom renal biopsy is inappropriate or risky such as end stage renal disease (ESRD) or hemorrhagic diathesis other tissue biopsies can be performed. Biopsies of subcutaneus fat, rectal mucosa, bone marrow, gingiva have various sensitivities for the diagnosis of amyloidosis.

We studied reliability and sensitivity of various tissue biopsies in patients with renal biopsy confirmed amyloidosis and aimed to find the most reliable and sensitive tissue biopsy site in patients with ESRD and in patients whom renal biopsy is contraindicated such as hemorrhagic diathesis.

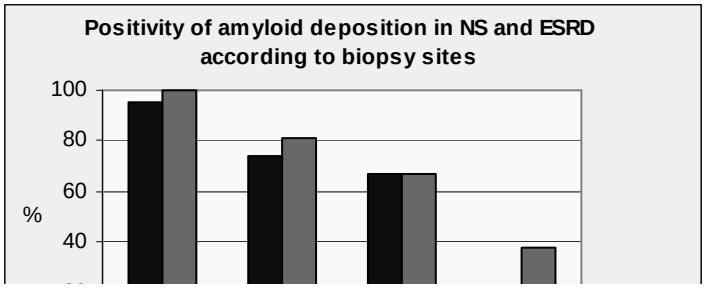
Materials and methods

21 patients (8 female; mean age 41 ± 19 years) with nephrotic syndrome in whom renal biopsy revealed amyloidosis and 32 patients (8 female; mean age 46 ± 15 years) with ESRD in whom amyloidosis is suspected as the etiological factor but renal biopsy could not have been done were investigated. Upper and lower gastrointestinal tract (GIT) endoscopies were performed and various biopsies of antrum, duodenum and rectum mucosa and also gingival biopsies were obtained. All biopsy specimens were studied by the same pathologist. Tissue specimens were stained with crystal violet and Kongo red and investigated subepithelial and perivascular amyloid deposition.

Results

In the NS patients group 95% of duodenal, 74% of rectal, 67% of antral biopsies revealed amyloidosis. Gingival biopsies were performed in 15 patients and all of them were found negative for amyloidosis. In the ESRD patients group, 12 of them revealed no amyloidosis in all GIT and gingival biopsies. In 20 patients diagnosed as amyloidosis 100% of duodenal, 81% of rectal, 67% of antral biopsies revealed amyloidosis. Gingival biopsies of 13 of these patients revealed 38% amyloidosis. No complications occured after biopsies.

	Duodenum	Rectum	Antrum	Gingiva
NS, Amyloid (+) (n=21)	%95 [19(+); 1(-)]	%74 [14(+); 5(-)]	%67 [12(+); 6(-)]	%0 [0(+); 15(-)]
ESRD,Amyloid (+) (n=20)	%100 [17(+); 0(-)]	%81 [13(+); 3(-)]	%67 [12(+); 6(-)]	%38 [5(+); 8(-)]



Correspondence to: Murvet Yilmaz, Kartaltepe mah. Yeniyol sok. 10/5 Bakirkoy, Istanbul 34144, Turkey
Tel 0090 212 542 57 98, fax 0090 212 234 11 21, e-mail: didemerimez@yahoo.com

Discussion

Renal biopsy is considered as the gold standard for the diagnosis of secondary amyloidosis. When renal biopsy is inappropriate or even contraindicated such as ESRD or hemorrhagic diathesis diagnosis by other tissue biopsies are considered. Subcutaneus fat, rectal mucosa, bone marrow and gingiva biopsy specimens can be used with variable sensitivities. Convenience of application, sensitivity and specificity are important for the preference of any one of these biopsy sites. Recent studies reveal the importance of GIT endoscopy and especially duodenum biopsy for the diagnosis of amyloidosis. Kobayashi et al. reported that gastroduodenal biopsies may be useful for diagnosis of secondary amyloidosis in patients with rheumatoid arthritis (RA).[1] Kuroda et al studied abdominal fat, gastroduodenal and renal biopsies for the diagnosis of amyiloidosis in RA patients. GI biopsy results were highly correlated with those of renal biopsy, but the results of fat biopsy were not; and they recommended GI biopsy for screening of systemic amyloidosis in patients with RA.[2] Tada et al, studied endoscopic and biopsy findings of the esophagus, stomach, duodenum and colorectum in patients with amyloidosis involving the GIT. The frequency of amyloid deposition was 100% in the duodenum, 95% in the stomach, 91% in the colorectum, 72% in the esophagus. They claimed that endoscopy and biopsy of the upper GIT and especially duodenum was important for the diagnosis of amyloidosis.[3] Tada in another study reported that the degree of amyloid deposition was the highest in the duodenum and jejunum.[4] Similarly, we found that in patients with renal biopsy proven secondary amyloidosis the highest frequency of amyloid deposition was in the duodenum. In addition, we also determined that duodenum biopsy was the most useful for the diagnosis of secondary amyloidosis in ESRD patients with suspicion of amyloidosis but renal biopsy could not be performed.

In conclusion, instead of rectal and gingival biopsies with lower sensitivities, upper GIT endoscopy and duodenum biopsy should be preferred for the diagnosis of secondary amyloidosis because of high sensitivity, tolerability and low complication risks.

References

1. Kobayashi H, Tada S, Fuchigami T, Okuda Y, Takasugi K, Matsumo T, Iida M, Aoyagi K, Iwashita A, Daimaru Y, Fujishima M. Secondary amyloidosis in patients with rheumatoid arthritis: diagnostic and prognostic value of gastroduodenel biopsy. Br J Rheumatol. 1996 Jan;35(1):44-9.
2. Kuroda T, Tanabe N, Sakatsume M, Nozawa S, Mitsuka T, Ishikawa H, Tohyama CT, Nakazono K, Murasawa A, Nakano M,Gejyo F. Comparison of gastroduodenal, renal and abdominal fat biopsies for diagnosing amyloidosis in rheumatoid arthritis. Clin Rheumatol. 2002 May;21(2):123-8
3. Tada S, Iida M, Iwashita A, Matsui T, Fucgigami T, Yamamoto T, Yao T, Fucishima M. Endoscopic and biopsy findings of upper digestive tract in patients with amyloidosis. Gastrointest Endosc 1990 Jan-Feb;36(1):10-4
4. Tada S. Diagnosis of gastrointestinal amyloidosis with special reference to the relationship with amyloid fibril protein. Fukuoka Igaku Zasshi 1991 Dec;82(12):624-47