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THU0281 SALIVARY GLAND ULTRASOUND FINDINGS ARE ASSOCIATED WITH CLINICAL AND SEROLOGIC FEATURES IN PRIMARY SJÖGREN'S SYNDROME PATIENTS

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Background: Primary Sjögren's syndrome (pSS) is a multisystem immune-mediated disease characterized by hypofunction of salivary and lacrimal glands and possible multi-organ systemic manifestations. Over the past years, three sets of diagnostic criteria have been proposed, but none included salivary gland ultrasound (SGUS). However, SGUS has been recently applied for diagnosis and there are some reports regarding the correlation of SGUS findings with immunological and serological features in pSS patients (1, 2).

Objectives: To investigate the association of SGUS findings with clinical and analytical features of pSS patients.

Methods: A total of 54 patients diagnosed with pSS, fulfilling both the 2016 ACR/EULAR and 2002 AECG criteria for the disease, followed-up at our Rheumatology department, underwent SGUS evaluation. The parenchymal homogeneity of bilateral parotid and submandibular glands was graded using a score of 0 (normal) to 4 (gross inhomogeneity). Patients were classified into two groups according to the highest US score obtained. The grades 1 and 2 were considered to be normal and grades 3 and 4 to represent pathological SGUS findings. Demographics (age, sex and disease duration), European League Against Rheumatism Sjögren's Syndrome Disease Activity Index (ESSDAI) and laboratorial data (erythrocyte sedimentation rate, autoantibodies, rheumatoid factor, hypergammaglobulinemia, β 2-microglobulin and complement levels) were collected and compared between the two SGUS groups. The association between SGUS and these data was explored by multivariable analysis. Statistical significance was defined as $p < 0.05$.

Results: The mean age of patients was 57.5 ± 13.3 years and median disease duration was 5.0 [IQR (2.75-11.25)]. The majority of the study population were women (96%) and 35% (19/54) had pathological SGUS findings.

Differences between the group with pathological SGUS versus the group with normal SGUS are depicted in table 1.

Multivariate logistic regression revealed that anti-SSB ([OR] = 6.6, 95% [CI] 1.7 to 25.8, $p = 0.006$) was independently associated with the presence of pathological features in SGUS.

Table 1. Comparison of demographics, clinical and serologic features of pSS according to SGUS.

	Pathological SGUS (n=19)	Normal SGUS (n=35)	P value
Mean age, years	54.3 $\pm$ 12.6	59.2 $\pm$ 13.5	0.497
Mean disease duration, years	6.6 $\pm$ 6.1	7.7 $\pm$ 5.2	0.976
ESSDAI (IQR)	2.2 (0-5)	0.9 (0-1)	0.044
Mean Sedimentation rate, mm	36.3 $\pm$ 22.1	22.7 $\pm$ 15.8	0.160
Antinuclear antibody, n (%)	19 (100)	32 (91.4)	0.544
Anti-SSA, n (%)	18 (94.7)	27 (77.1)	0.137
Anti-SSB, n (%)	14 (73.7)	9 (25.7)	0.001
Rheumatoid factor, n (%)	14 (73.7)	14 (40.0)	0.018
Hypergammaglobulinemia, n (%)	12 (63.2)	14 (40)	0.104
Mean β 2-microglobulin, mg/L	2.9 $\pm$ 0.9	2.2 $\pm$ 0.7	0.378
Mean Complement 3, mg/dL	115.1 $\pm$ 28.9	120.7 $\pm$ 24.5	0.938
Mean Complement 4, mg/dL	21.6 $\pm$ 6.0	21.9 $\pm$ 8.1	0.165
Hydroxychloroquine treatment, n (%)	15 (78.9)	21 (60.0)	0.229

Conclusion: In our study, pathological US findings were associated with higher disease activity and positivity for rheumatoid factor and anti-SSB. Additionally, anti-SSB antibody was strongly and independently associated with pathological US findings in the salivary gland of pSS patients. Further and larger studies are necessary to support these findings and include SGUS as part of the diagnostic criteria for Sjögren's syndrome.

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THU0282 ULTRASOUND FINDINGS IN THE SALIVARY GLANDS IN A COHORT OF PATIENTS WITH SUSPECTED SJÖGREN'S SYNDROME

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Background: Ultrasound has been shown to be a promising tool in the evaluation of salivary glands for parenchyma changes with the potential to improve diagnosis. The changes range from mild inhomogeneity of the glandular tissue to large vesicular changes almost eliminating all normal glandular tissue. American-European Consensus Group (AECG) classification criteria for SS are often used diagnostically (1).

Objectives: To describe ultrasound findings in salivary glands (SGUS) in a cohort of patients with suspected Sjögren's syndrome (SS) and assess their positive and negative predictive value for the diagnosis.

Methods: 191 consecutive patients with suspected SS (ocular and/or oral dryness) referred to the department of Rheumatology between March 2017 and March 2018 were evaluated by SGUS as part of the initial evaluation. All had unstimulated sialometry, Schirmer's test and laboratory test done (including autoantibodies (ANA screening, Rheumatoid factor and anti-cyclic citrullinated peptide, anti-Ro/SSA and anti-La/SSB), and screenings test for hepatitis B+C). In doubtful cases, a minor salivary gland (MSG) biopsy was performed. SGUS was performed with a GE Logiq E9 equipped with a linear ML6-15 probe and included grey-scale evaluation of the submandibular and parotid gland bilaterally. SGUS was considered abnormal when moderate to severe inhomogeneity with anechoic or hypoechoic areas was present in at least one gland.

Results: 63 patients were diagnosed with SS according to the AECG classification criteria - 57 patients with primary SS, 6 with secondary SS. 128 patients with sicca symptoms did not fulfill AECG criteria for SS and none were diagnosed with SS based on other parameters. Demographic data for the cohort is shown in table 1. 55 patients had MSG biopsy performed. The SGUS examination and evaluation was performed in less than 15 min per patient. The sensitivity of SGUS is 0.51 and the specificity 0.88; the PPV of SGUS for the SS diagnosis was 0.68 and the NPV was 0.78.

The sensitivity of SGUS for positive MSG biopsy was 0.29 and the specificity 0.82 - the PPV was 0.50 and the NPV was 0.65; for abnormal sialometry the sensitivity of SGUS was 0.32 and the specificity 0.82 - the PPV for SGUS was 0.64 and NPV was 0.55.

Table 2 shows the association between SGUS and final diagnosis, MSG biopsy and sialometry, respectively.

Abstract THU0282 – Table 1.

Table 1	Primary SS	Secondary SS	Not fulfilling SS classification criteria
Female/male, n	55/5	6/0	101/27
Mean age, years (range)	56 (27-83)	56 (42-68)	56 (17-86)
Positive Schirmer's test, n(%)	26(46%)	2(33%)	6 (5%)
Positive Sialometry, n(%)	44(77%)	6 (100%)	45(35%)
Anti-Ro/SSA, n(%)	48(84%)	1 (17%)	37(29%)
Anti-La/SSB, n(%)	18(32%)	0 (0%)	6(5%)

n= number, SS= Sjögren's Syndrome

Table 2	Fulfilling SS classification criteria n (%)	Not fulfilling SS classification criteria n (%)	Positive MSG biopsy n (%)	Negative MSG biopsy n (%)	Positive sialometry for SS n (%)	Negative sialometry for SS n (%)
Positive SGUS for SS n (%)	32 (51%)	15 (12%)	6 (29%)	6 (18%)	30 (32%)	17(18%)
Negative SGUS for SS n (%)	31 (49%)	113 (88%)	15 (71%)	28 (82%)	64 (68%)	80 (82%)

n= number, SS= Sjögren's Syndrome, MSG=minor salivary gland

Conclusion: SGUS has a high specificity but poor sensitivity for the SS diagnosis with a good NPV and a high specificity for positive MSG