

# Hypogammaglobulinemia in a Patient with Multiple Non Melanoma Skin Cancers

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## ABSTRACT

### Hypogammaglobulinemia:

Reduced antibody production secondary to impaired B-cell differentiation, classically resulting in recurrent upper respiratory tract infections.

### Common variable immune deficiency (CVID):

Hypogammaglobulinemia with poor or absent response to immunization, often associated with an increased incidence of lymphoproliferative, inflammatory and autoimmune disorders. Multiple invasive squamous cell carcinomas (SCC) have been reported in CVID in the past.

The patient described presented with 2.5 years of constitutional & rheumatologic symptoms, recurrent episodes of sinusitis & 18 separate excisions of non melanoma skin cancer (NMSC), found to have isolated hypogammaglobulinemia.

### Unique Aspect:

This is the first reported case of isolated hypogammaglobulinemia and multiple recurrent NMSC.



**Figure 1.**  
Cutaneous squamous cell carcinoma



**Figure 2.**  
Cutaneous basal cell carcinoma

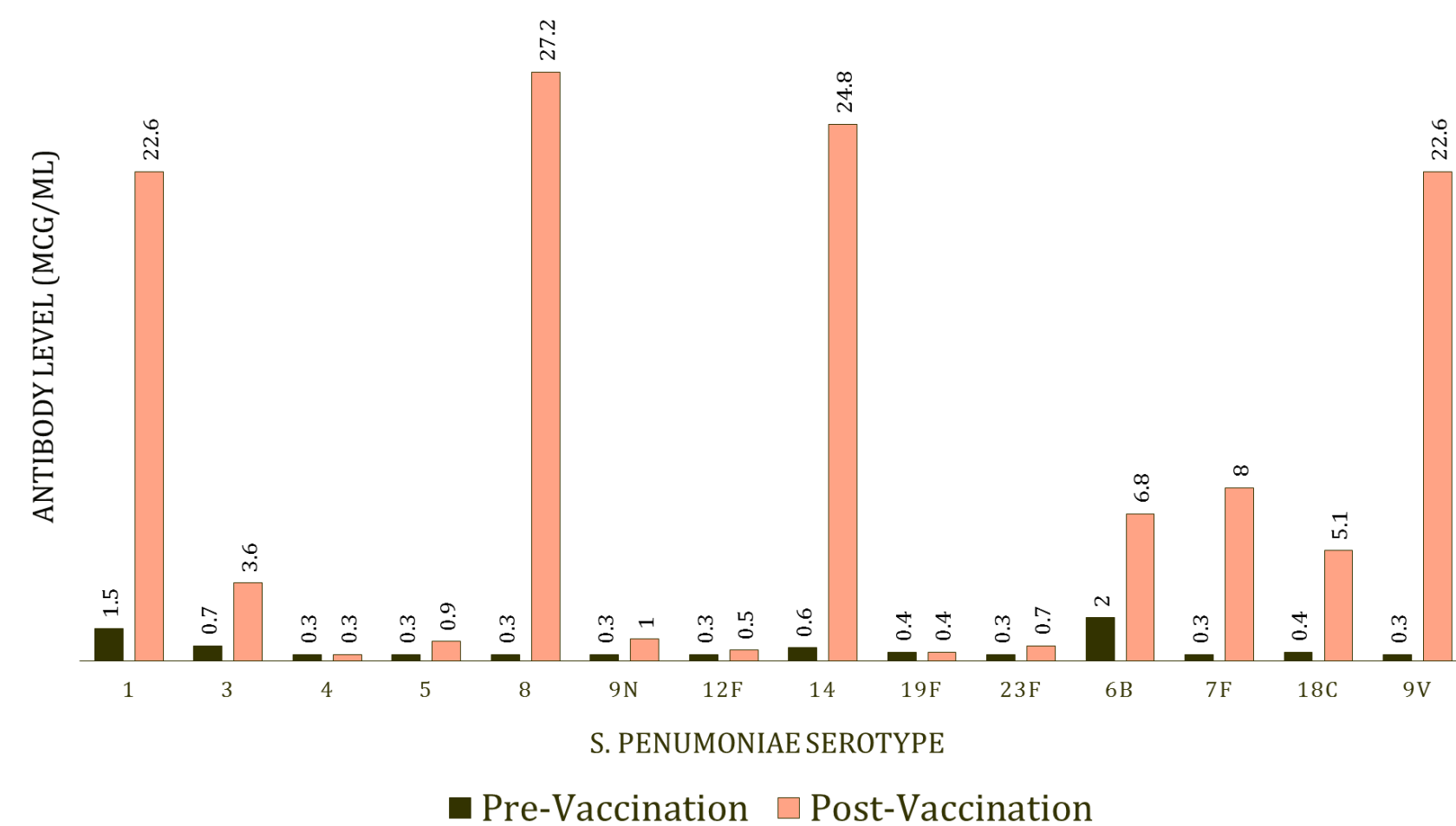
## CASE SUMMARY

- 55 year old female
- Chronic malaise, fatigue, hair loss, arthralgia, weight loss, temperature intolerance, recurrent sinopulmonary infections & skins lesions x2.5 years
- Diffuse pruritic erythematous rash developed year 1
- Multiple skin lesions noted , confirmed to be NMSC
  - 14 squamous cell carcinomas (SCC)
  - 4 basal cell carcinomas (BCC)
  - Vulvar VIN-3 squamous cell carcinoma in-situ
  - Cervical squamous cell carcinoma on pap
  - Delayed wound healing after excisions

## DIAGNOSTICS

- Elevated Sed Rate (54 mm/h)
- Low IgG (529 mg/dL)
- Low Streptococcal pneumoniae antibody titers
- Negative PET/CT scan
- Benign lymph node biopsy
- Adequate response to pneumovax (Figure 3)

**Figure 3.** RESPONSE TO PNEUMOCOCCAL VACCINATION



## RESULTS

Table 1, Lab Values

	1/15/2015
WBC (x10 <sup>9</sup> /L)	10.0 (4.4-11.3)
Hematocrit (g/dL)	43.2 (36.0-46.0)
Platelets (x10 <sup>9</sup> /L)	284 (150-450)
%Neutrophils	60.4
%Immature Gran	0.3 (0.0-0.9)
%Lymphocytes	32
%Eosinophils	1.2
%Monocytes	5.7
%Basophils	0.4
IgA Serum (mg/dL)	185 (81-463)
IgM Serum (mg/dL)	235 (48-271)
IgG Serum (mg/dL)	529 (694-1618)
ESR (mm/hr)	54 (0-30)
CD45	100%
CD19	9% (6-19)
CD3	80% (59-87)
CD3+CD4	71% (29-57)
CD3+CD8	9% (7-31)
CD4/CD8 ratio	7.89 (1.0-3.5)
CD3+CD4+CD8	1.00% (0-5.9)
CD3+CD16+CD56	11% (0-18)
CD19+CD27+IGD (Naïve B Cells, % of CD19)	74% (58-72.1)
CD19+CD27+IGD (Non-Switched Memory B Cells, % of CD19)	5.0% (13.4-21.4)
CD19+CD27+IGD (Switched Memory B Cells, % of CD19)	12% (9.2-18.9)
Flow Cytometry Marker Interpretation	Presence of CD4 and CD8 T lymphocytes, B lymphocytes, and NK cells; There is a relative decrease in Non-Switched Memory B Cells

## DISCUSSION

The prevalence of primary immune deficiency is estimated to be 1 in 1,200 persons in the United States. Risk of malignancy in these patients is up to five times greater than the general population, most notably for leukemia and lymphoma. However, prolonged immunosuppression such as that which is seen in solid organ transplant patients increases the incidence of non melanoma skin cancer by 10-250 fold, the higher range of which tends to be squamous cell carcinoma. Of all malignancies encountered in this patient population, skin cancer accounts for 95%. As a result, improved surveillance screening of individuals who have undergone solid organ transplant has been implemented. In 1992, a case illustrating multiple invasive squamous cell carcinomas and CVID was reported as the first of its kind, highlighting the relationship between cutaneous malignancies and primary immune deficiency. The patient described herein is the first reported case of multiple non melanoma skin cancers with isolated hypogammaglobulinemia. It is reasonable to consider thorough skin examination as a regular screening protocol in patients with hypogammaglobulinemia moving forward, considering the likely relationship between hypogammaglobulinemia and cutaneous malignancy.

## CONCLUSIONS

- Prolonged immunosuppression predisposes to malignancy, notably leukemia & lymphoma.
- Organ transplant recipients receiving iatrogenic immunosuppression are at increased risk for malignancy, 95% of which are skin cancers.
- Multiple non melanoma skin cancers have been described in patients with common variable immune deficiency.
- This is the first case report to describe multiple non melanoma skin cancers in a patient with isolated hypogammaglobulinemia.