



THE PROZONE PHENOMENON

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Objective :

**Describe
Prozone
Phenomenon**



INTRODUCTION

There are three types of zones including the prozone.

DEFINITION OF ZONE PHENOMENON

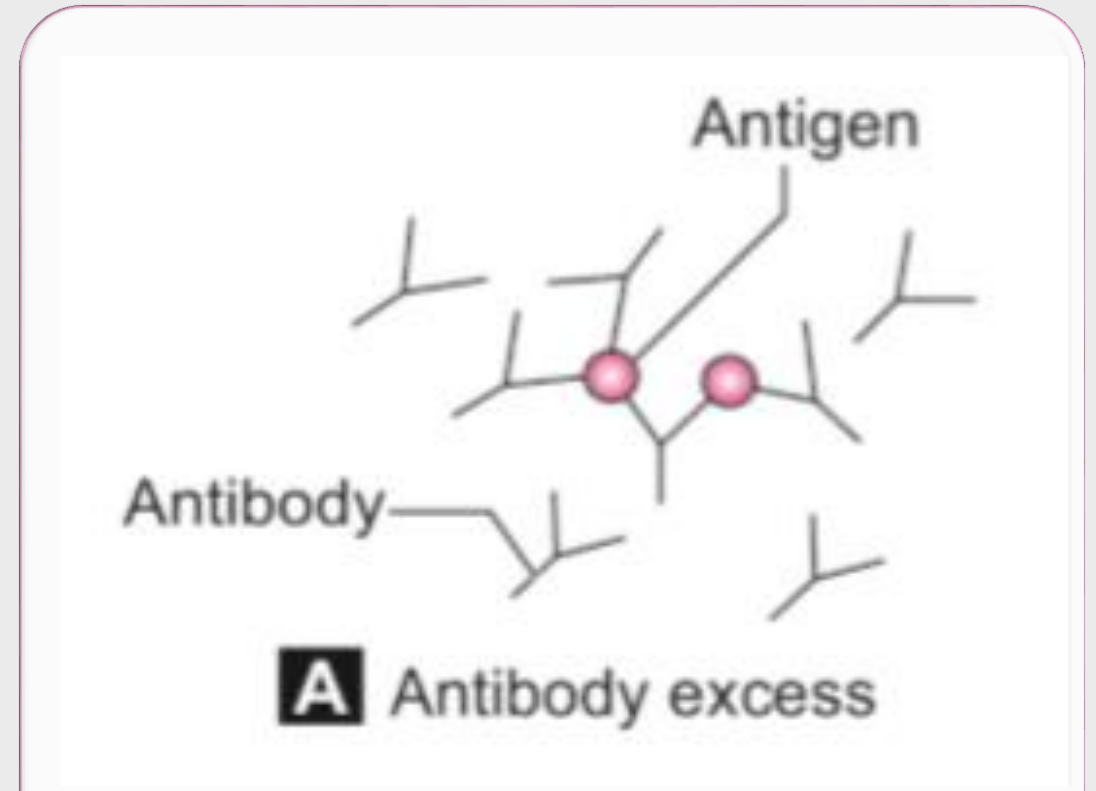
A quantitative precipitation reaction can be performed by placing a constant amount of antibody in a series of tubes and adding increasing amounts of antigen to the tubes. This plot of the amount of **antibody precipitated** versus **increasing antigen concentration** (at constant total antibody) reveals three zones, This is called zone phenomenon.

The three zones

Three zones

I. Zone of antibody excess or prozone:

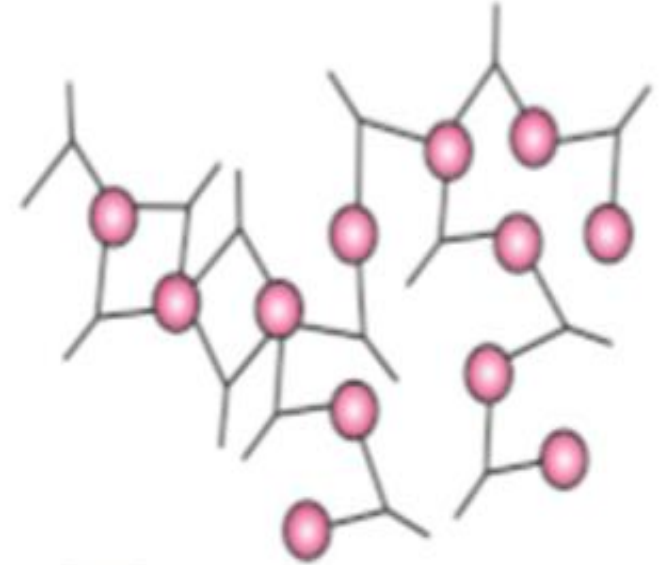
The prozone is of importance in clinical serology, as sera rich in antibody or may sometimes give a false-negative precipitation or agglutination result, unless several dilutions are tested.



Antibody concentration is less than antigen concentration

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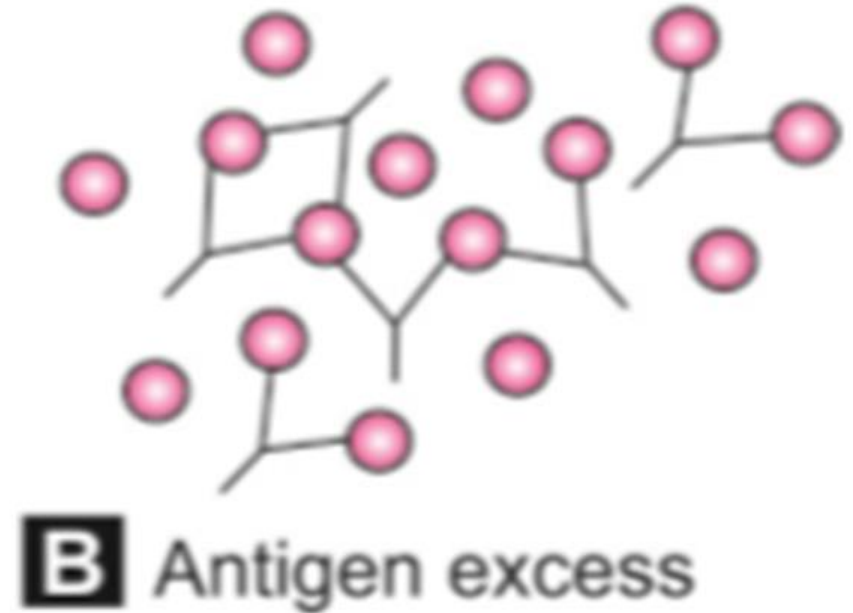
2. Equivalence zone (peak): Occurs when the ratio of antibody to antigen is optimal.



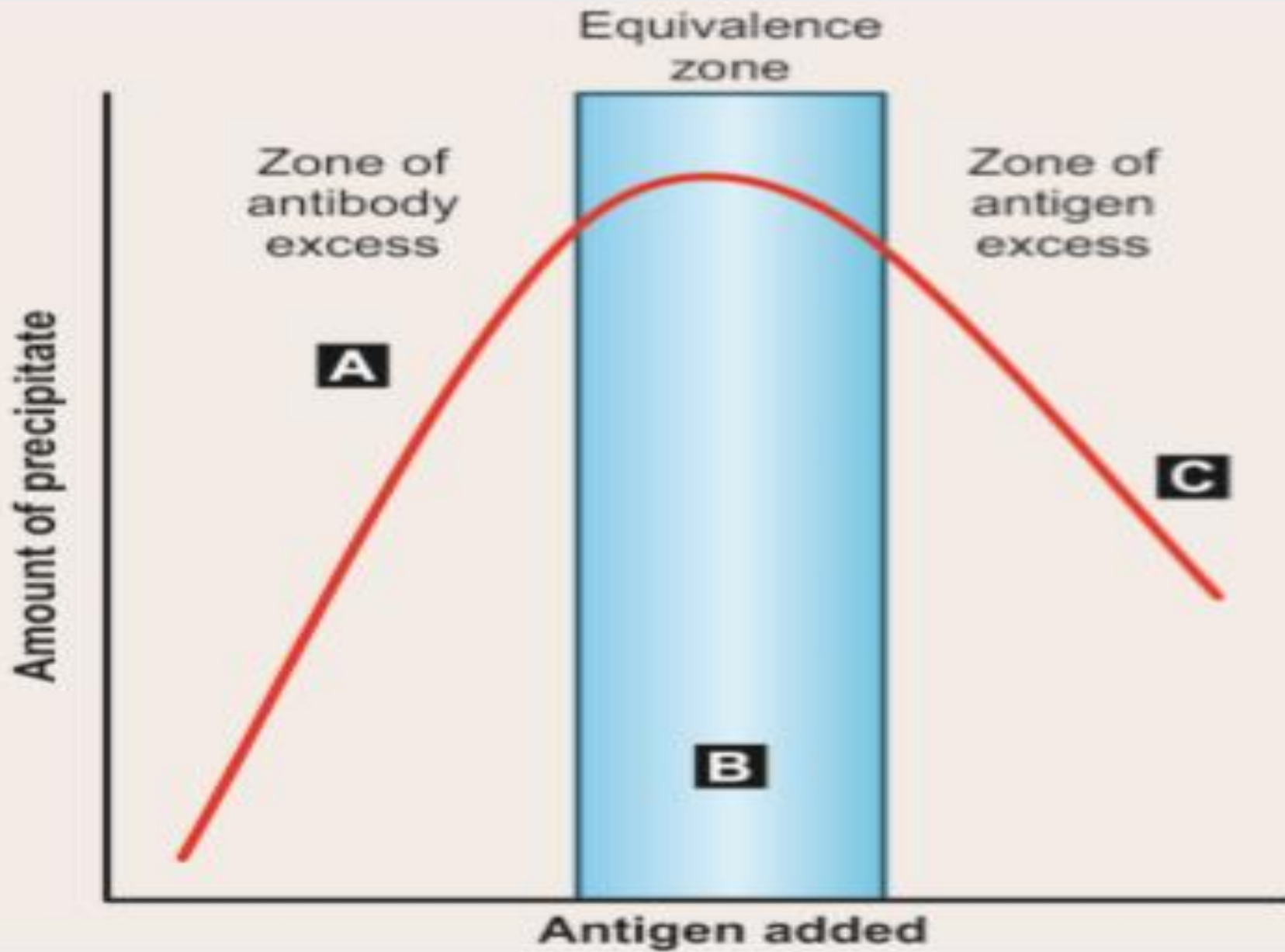
The antigen concentration and antibody concentration are equal

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3. Zone of antigen excess or post zone (descending part): In the tubes containing more antigen, the amount of precipitate increases up to a point, after which it decreases as a result of smaller complexes being formed in the zone of antigen excess.

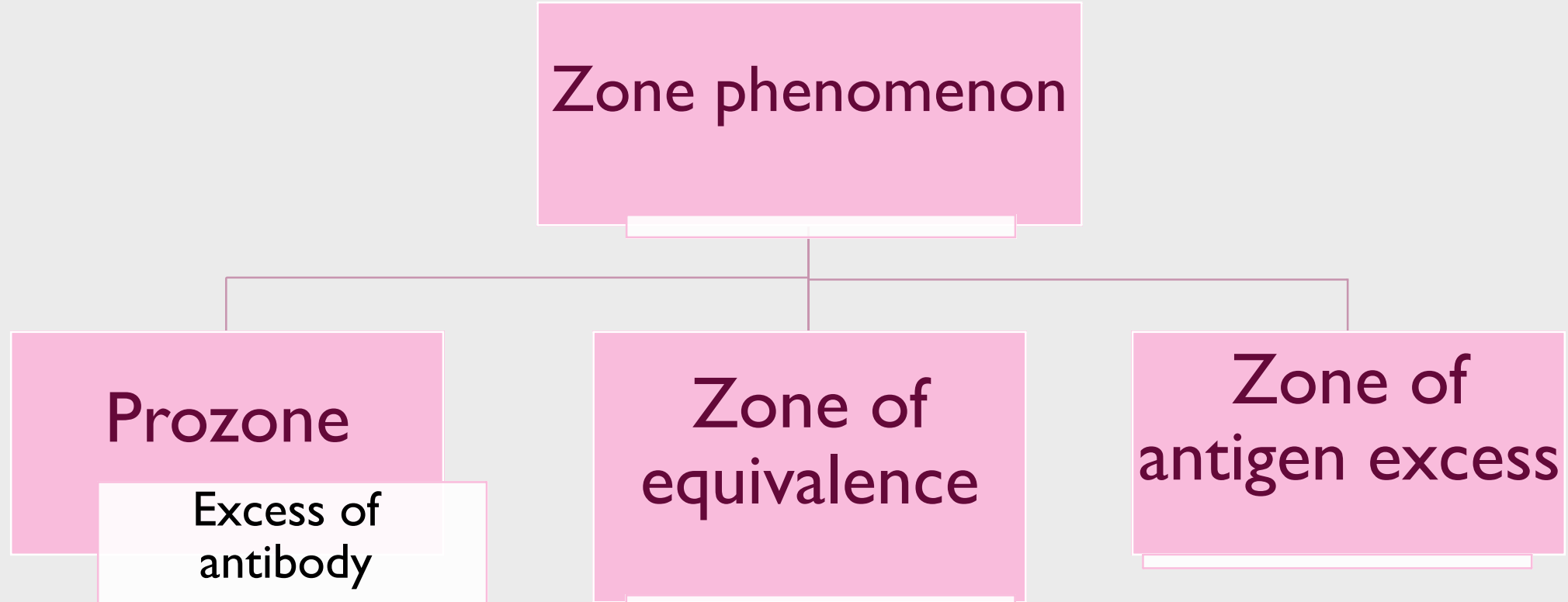


Antigen concentration are more than antibody concentration.



A plot showing the three zones

Summary





Thank

you